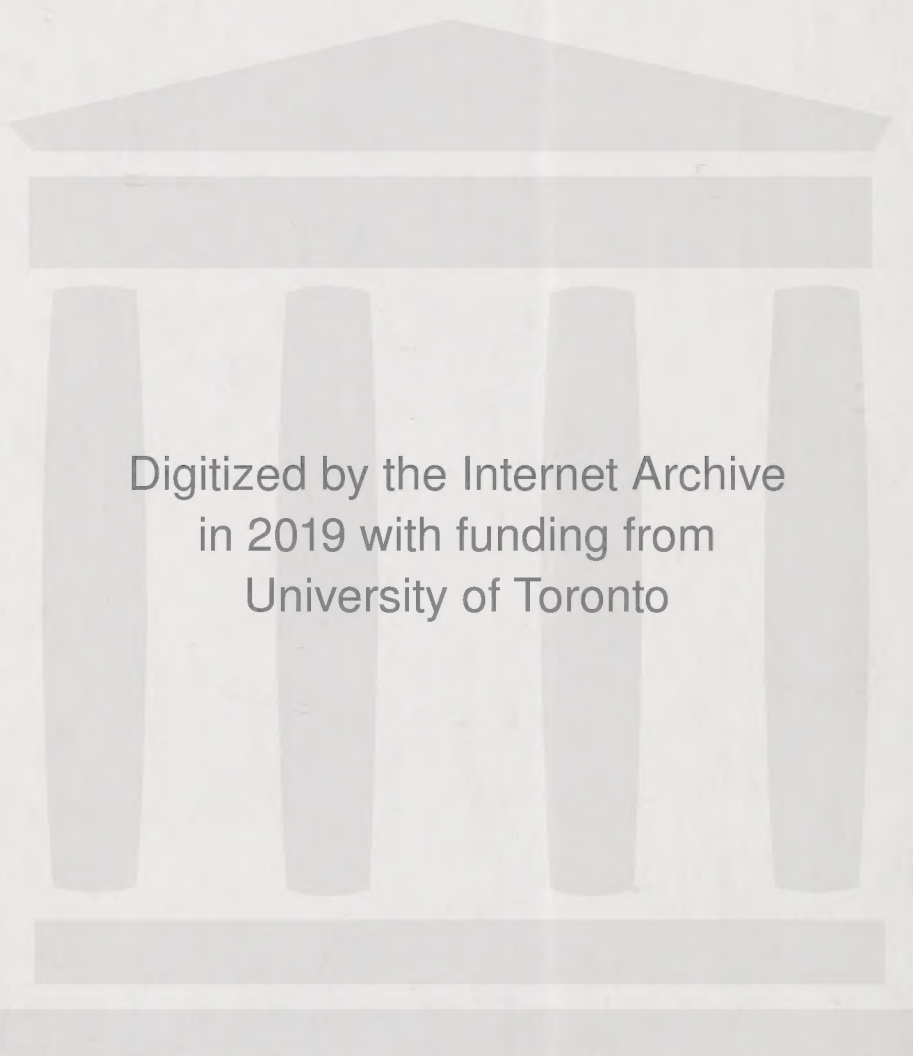




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HIPPOCRATES

AND HIS SUCCESSORS
IN RELATION TO THE
PHILOSOPHY OF THEIR TIME

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HIPPOCRATES

AND HIS SUCCESSORS
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PHILOSOPHY OF THEIR TIME

*The Fitzpatrick Lectures delivered
at the Royal College of Physicians
1921-22*

BY

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PREFACE

THESE lectures are a most imperfect attempt to conjure up the philosophic milieu in which Hippocrates lived and in which the medical schools immediately succeeding him flourished. In those days Medicine and Philosophy, Art, Science and Religion were all most closely intertwined, and though the sum total of exact knowledge has gained by their separation, the difficulty of finding one's way about life and viewing it as a whole has increased.

It was said by an old Spanish physician that if you only know medicine you don't know that; so it may be that the physician, however deeply engaged in actual practice, by scouting in the outlying regions of philosophy will not find his labour entirely lost, but will realize the fact that knowledge is essentially an entirety and that its various aspects are only separated for a time. Some of the early Greek philosophers themselves engaged in the practice of Medicine, while some physicians devoted time and energy to the study of Philosophy.

The most important differences distinguishing the thought of the ancients from that of our own day are due to the revolution which the pursuit of science has brought about in our way of envisaging the world.

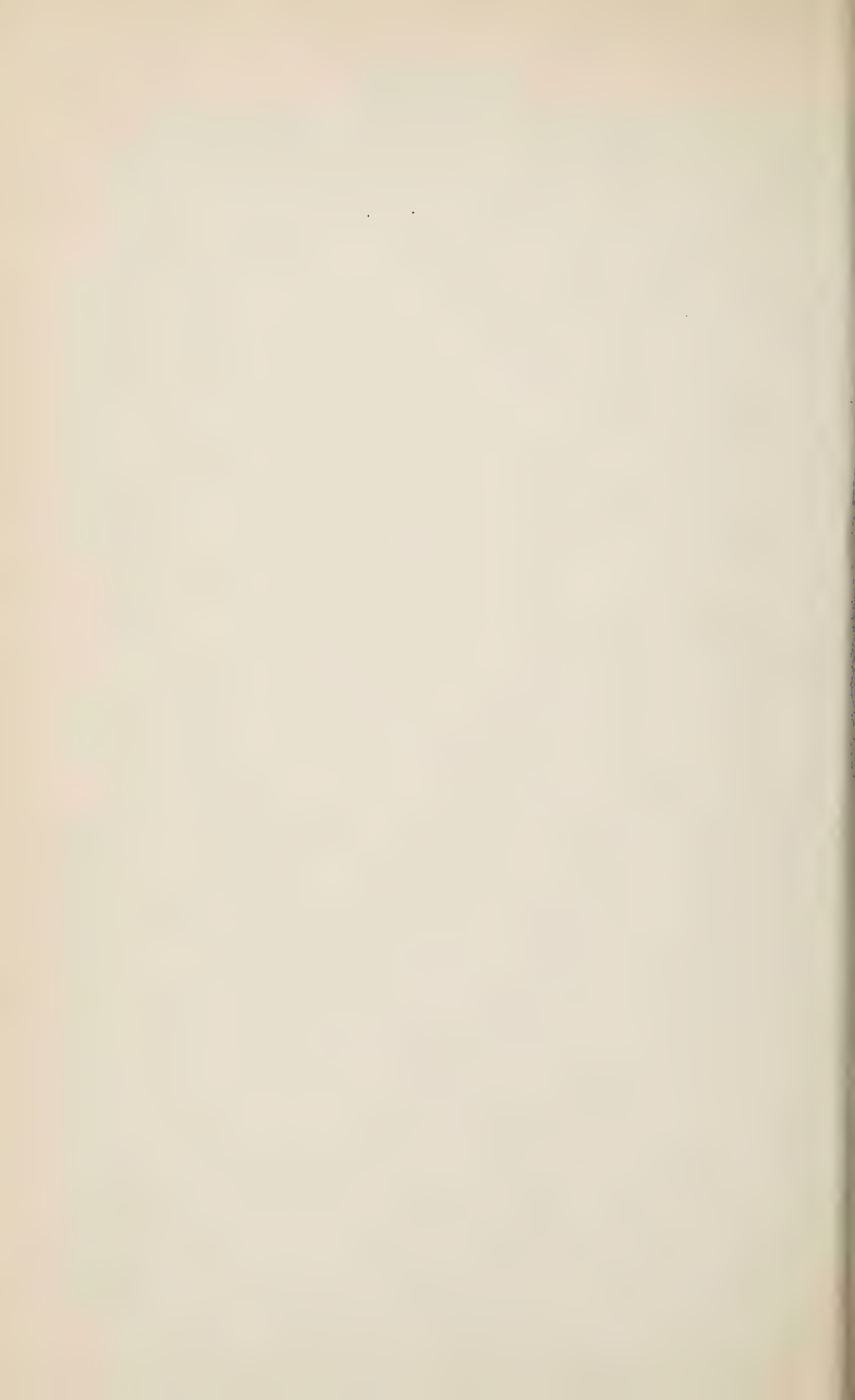
In Medicine at the present day there is a greater amount of co-ordinated knowledge, about which everyone is agreed, so that there is nothing which corresponds to the divisions among the Post-Hippocratic Schools of Medicine and their violent antagonism to one another which rivalled the polemics of mediæval ecclesiastics.

The modern world would seem to be overwhelmed by a plethora of facts, while from a practical point of view there is no good in having more knowledge than can be handled efficiently.

It may be that in Medicine to-day analysis has been carried to its furthest point and is having a sterilizing effect; already there appears to be a tendency back to the synthetic method which characterized so much of ancient Medicine and which it is to be hoped will be still more fruitful owing to the solid basis of facts upon which it is now able to rest.

I am greatly indebted for much of the information contained in these lectures to Professor Burnet's "Early Greek Philosophy" (2nd Ed.), Professor Clifford Allbutt's "Greek Medicine in Rome," Dr. Singer's article on Medicine in "The Legacy of

Greece," and to Gomperz' "Greek Thinkers." Also I have made much use of H. Diel's "Vorsokratiker," M. Wellmann's "Fragmentsammlung der Griechischen Ärzte," C. Friedrich's "Hippokratische Untersuchungen," and Professor Max Neuburger's "Geschichte der Medizin." References to Kurt Sprengel are to the French translation by A. J. L. Jourdan.



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“ S’il est possible de trouver quelque moyen qui rende communément les hommes plus sages et plus habiles qu’ils n’ont été jusqu’ici, je crois que c’est dans la médecine qu’on doit le chercher.”

DESCARTES. *Discours sur la Méthode.*

“ Placé entre le charlatan et le médecin sérieux, le peuple va toujours au charlatan. Le peuple veut qu’on ne lui dise que des choses claires, faciles à comprendre, et le malheur est qu’en rien la vérité n’est à la surface.”

RENAN. *L’avenir de la Science.*

“ Alles Gescheite ist schon gedacht worden; man muss nur versuchen, es noch einmal zu denken.”

GOETHE. *Sprüche in Prosa.*

“ Die Medizin beschäftigt den ganzen Menschen, weil sie sich mit dem ganzen Menschen beschäftigt.”

GOETHE. *Dichtung und Wahrheit.*

FITZPATRICK LECTURES I & II

HIPPOCRATES IN RELATION TO THE
PHILOSOPHY OF HIS TIME



HIPPOCRATES

AND HIS SUCCESSORS IN RELATION TO THE PHILOSOPHY OF THEIR TIME

LECTURE I

HIPPOCRATES IN RELATION TO THE PHILOSOPHY OF HIS TIME

NEVER in the history of the world has there been a more concentrated intellectual ferment than that of which the Western coasts of Asia Minor, the Greek Archipelago and the Southern shores of Italy were the scene in the 5th and 6th centuries before the Christian era.

Into the causes of this singular outburst of mental energy among the Ionian Greeks in so comparatively limited a time and in so relatively restricted a space it is not our purpose now to enquire, rather is it our intention to consider how the best known representative of our art at that time—namely Hippocrates—was influenced by the various philosophic and other speculations which characterized the epoch in which he flourished.

The extremes of specialism and minute differentiation of knowledge into water-tight compartments which would seem to be the price that modern civilization is compelled to pay for its increased acquaintance with the phenomenal world, most certainly did not exist in the time of Hippocrates, when Art and Religion, Medicine and Philosophy, acting and reacting upon one another, were almost inextricably intermingled, resulting in a greater unity of life than the world has since seen.

Now the earliest written records of any subject are apt to represent for us the first beginnings of that subject: but of course men felt, thought, talked and acted long before they committed anything to writing. To speak therefore of Hippocrates as "the Father of Medicine" in the sense of being the originator of the science of Medicine, as opposed to the magical medicine of primitive peoples, conveys a somewhat false impression. For already, prior to historical times, there were in existence schools of Medicine at Croton in Italy, at Cyrene in N. Africa, besides the well-known one of Cnidos on the coast of Asia Minor, of which we shall speak later; and not only so, but even a more or less technical language had been created. Still in the main it would be true to say that Hippocrates was the first physician whom we know to have reflected with any intellectual power upon the medical art, which up to his time had been little more than a collection of isolated facts combined with numerous immature fancies, just as astronomy

had consisted of little more than crude observations by Chaldæan star-gazers prior to the arrival of Hipparchus. (160 B.C.)

We will pass over briefly the external circumstances of the life of Hippocrates. Learned historians have disputed for all time as to the exact date of his birth; suffice it to say that he was born about 460 B.C., in the island of Cos, near the Ionian coast of Asia Minor. As in the case of all great men among the ancients, legend attributed to him a semi-divine origin, tracing his ancestry to Hercules on his mother's side and to Æsculapius in the paternal line. As a matter of fact, the actual name of his father was Heraclides, also a physician, belonging to the family of the Asclepiadæ, and of his mother, Phaenarete. Hippocrates left his native island of Cos at an early age, some have said in consequence of a dream, but, more probably, because he wanted a wider sphere for the exercise of his talents. He is said to have gone first to Athens, where he received instruction from the famous sophist Gorgias of Leontini, and also from the sophist's brother, Herodicus of Selymbria, who was not only a physician but celebrated as a gymnastic master, and appears to have been one of the first to apply gymnastics to the treatment of disease and the preservation of health. According to a passage in the *Phaedrus* of Plato,¹ his treatment was somewhat drastic, as he used to order his patients to walk from Athens to Megara and back—a distance

¹ *Phaedrus* 227. D.

of twenty miles. Hippocrates practised mainly in the island of Thasos, at Abdera, and in various towns of Thessaly, but his travels seem to have been extensive, particularly in the regions bordering on the Black Sea, as well as in Asia Minor, where, according to Galen, he visited Smyrna frequently, and he is also said to have penetrated as far as Egypt. He ended his life in Thessaly, dying at Larissa, at an advanced age; according to some, being eighty-five, to others ninety or one hundred and four. His tomb, as we know from Pausanias, was still to be seen in the second century A.D., and, according to tradition, a swarm of bees settled on it whose honey was efficacious against stomatitis in children.

His first well-known patient was Perdiccas II, king of Macedonia, but he was also called in by the citizens of Abdera to treat their distinguished countryman, the philosopher Democritus, of whom we shall have more to say later on, for insanity. There are numerous stories handed down about Hippocrates, for which, however, there is really no adequate foundation. Thus he is said to have predicted that a plague was likely to invade Greece and patriotically refused to remain in Macedonia, where he was at the time, and even rejected the ambassadors sent by Artaxerxes, king of Persia, inviting him to the Persian Court, on the ground that he was the enemy of his country, but returned to Greece, where he is said to have driven away a plague from Athens by causing large fires to be lighted throughout the town

and ordering strong-smelling flowers to be hung up. This idea of treatment it is supposed he arrived at by observing how blacksmiths and others whose occupations were connected with fire escaped the plague.

The great reputation of Hippocrates, which has lasted on to the present day, was already firmly established in his lifetime. Thus Plato, the most illustrious of his contemporaries, through the mouth of Socrates, invokes his authority and recommends his school of medicine to those who wish to become physicians; nor does he hesitate to class him with the renowned sculptors, Pheidias and Polycletus. Aristotle, too, writing only a few years after the death of Hippocrates, refers to him as "The Great Hippocrates." The writings which have come down to us under the name of Hippocrates cannot certainly all claim the great physician as their author, but they are undoubtedly all of an ancient date. The collection of treatises, known as "The Corpus Hippocraticum," was put together and edited by a commission of Alexandrian scholars under orders from the book-loving Ptolemy about the time when the library of Alexandria was founded, i.e., between 320 and 300 B.C., not more than some forty or fifty years after the death of Hippocrates. The different treatises which bear the name of Hippocrates were diligently sought for, and formed into a single collection. Even in the time of Galen not all the works contained in the Corpus Hippocraticum were regarded as genuine, but the ancient world was far less critical than the

modern, and only regarded a few of the treatises as spurious. But the more searching investigations and refined criticism of the 19th century editors of Hippocrates will hardly allow us to admit as genuine more than some twelve of the 59 works which compose the Corpus; of the remainder, all are of ancient date and many were written by the pupils and disciples of Hippocrates, but into their varied authenticity we do not propose to enter.

Now it may at first seem strange to speak of Hippocrates in connection with philosophy, when we are specially told by Celsus, the Roman physician who wrote on medicine in the first century of our era, that Hippocrates "separated Medicine from Philosophy,"¹ and indeed Celsus seems to have regarded this as an important title to fame. But just as Socrates was said to have brought down Philosophy from heaven to earth, by which is meant that he drew men's minds away from speculations about the sun, moon, stars and the physical universe generally in order that they should study and acquire clear ideas about their own thoughts, as their gradually more enlightened self-consciousness made them realize that their own faculties were the limit and condition of all knowledge of the phenomenal world, similarly Hippocrates may be said to have "separated Medicine from Philosophy" by directing men's minds away from the nebulous theories and unverified hypotheses of

¹ Primus quidem ex omnibus memoria dignis ab studio sapientiae disciplinam hanc separavit.

the early Ionian physical Cosmologists and by leading them to the observation of facts which must ever be the main foundation of medicine. In more technical language he may be said to have initiated the Inductive Method. But, unlike Bacon, the father of modern philosophy, Hippocrates did not introduce his method with a great rhetorical flourish of trumpets as a “*Novum Organum*” which was to furnish the key to all the secrets of nature: he seems indeed to have been curiously unaware of the value of his own instrument. Genius often does things rightly by means of what Aristotle called εὐστοχία, or Happy Guessing, rather than by the operations of the discursive reason, and subsequently it comes to have attributed to it a deliberate purpose of which it had been entirely unconscious. Thus, in the Spanish chapel at Florence there is a fresco by Giotto of great beauty and deep feeling depicting the “Meeting of Anna and Joachim”; in addition to the sacred scene there are represented two grotesque-looking shepherd lads sporting with each other in boorish fashion. Now the celebrated art critic, John Ruskin, in commenting upon this fresco,¹ speaks as though the introduction of these somewhat comic figures into a rather solemn scene had been the outcome of a reasoned process on the part of Giotto, whereas it was doubtless the result of that instinctive perception of what is admissible in art which characterizes genius and not the outcome of the operation of the discursive

¹ Hippocrates—The Articulations: Littré, Vol. IV., p. 312.

reason. Hippocrates had been led to the careful and accurate observation of facts by the naturally practical bent of his genius, and not because he had thought about the importance of the inductive method for the study of medicine. To purely theoretical conceptions not based upon any sound observation he paid for the most part very little attention. But he had neither the time nor the inclination for fully setting forth the theory of his method as a logical instrument of scientific investigation: for it must always be remembered that Hippocrates was a practising physician occupied in making people well as quickly as possible and, to quote his own most illuminating maxim, employing "that method of treatment which was least elaborate." For where there are two lines of treatment open to him the Physician should choose the least imposing or sensational; it was an act of deceit, he said, to dazzle the patient's eyes by brilliant exhibitions of skill which might very well be dispensed with.¹ He was essentially practical, for him the idea was only a means to the act, theory led always to application. He made Medicine a science distinct from all others, having its own principles and method of exposition and seeking in itself its principles of development. But he did not trumpet forth an exclusive system, or a new doctrine, for indeed he drew most of the elements of his science from tradition. What he did create was a scientific method which embraced Semeiology, Prognosis and Thera-

¹ Hippocrates—The Articulations Littré, Vol. IV., p. 312.

peutics, and this method was experience based upon reasoning. Now Bacon, on the other hand, lent the whole weight of his all-embracing mind to the formulation and exposition of his method, but did not engage in any form of practical scientific observations. Yet in a single sentence the English philosopher put his finger on the weak point of the Ancients in their scientific investigations. "The mind," he said, "has a yearning which makes it dart forth to generalities that it may have something to rest in; and after a little dalliance with experience becomes weary of it." In Bacon's conceptions of science there would seem to have been a somewhat mechanical element, for he even seems to have thought that one set of men might be engaged in collecting the facts, while another set was busied with drawing conclusions, as though truth could be investigated by government departments. Certainly he does not seem to have made any effective or practical use of his own method, indeed the great Harvey complained that Bacon reasoned like a Lord Chancellor, which is hardly the most suitable way of unravelling scientific truth.

The fact is, that whether we employ the Inductive or Deductive method in science, the man who is much busied with these logical instruments, though he may be kept free from gross and absurd errors, is not usually a good observer of physical phenomena. It would seem that there is a certain antagonism not so much between the Inductive and Deductive types

of mind as between the Observing and Reflecting Mind; now Bacon belonged essentially to the latter type, but the mind of Hippocrates was primarily that of an observer. These two kinds of mind tend to be opposed, but may sometimes be found happily united in the poet.

Hippocrates, as he went about his daily medical work, was obviously not thinking of the special logical instrument most suitable for the attainment of truth, but of actually curing the patients under his care; consequently he adopted the method of close and careful observation of the phenomena of disease and from them formed his practical rules for prognosis and treatment.¹ Living as he did in one of those periods of the world's history which produces almost simultaneously a great galaxy of talent, when genius seems to beget genius—for among his contemporaries were Pericles and Pheidias, Euripides and Aristophanes, Socrates and Plato—the constant collision of original minds with one another could not but stir him to reflect deeply upon his own observations so that they became something more than bare statements of fact, while the general intellectual ferment around him stimulated his powers of

¹ "The Art of Medicine," he says, in the treatise entitled 'Ancient Medicine,' "has from the earliest ages contained everything in itself, a principle as well as a method by means of which, in more spacious times, many beautiful discoveries have been made: the rest will yet be found out, if capable investigators, knowing what has already been achieved, commence their research from that point." Observation of facts, evidence of the senses were for Hippocrates only the starting points of a system which not only did not set aside unifying methods of thought but even demanded them.

criticism both of his predecessors and contemporaries; but we must never forget that Hippocrates was an intensely practical physician and not a professed Sophist or Philosopher.

Before entering on the subject of his philosophic predecessors and contemporaries, we will give a short outline of the main ideas underlying the Hippocratic Medicine.

(1) The human body is animated by an innate heat (θερμὸν ἔμφυτον), the evaporation of which causes death. Man is warmest on the first day of his existence and coldest on the last. In his treatise on the "Heart" this innate fire (ἔμφυτον πῦρ) is spoken of as lodged in that organ. If this innate heat is synonymous with the force of growth it is doubtless stronger in the infant than in the young man, but it is certainly distinct from the temperature of the body, which is not greater in the child than in the adult.

(2) There are in the Body four Primary Humours, namely, Blood, Phlegm, Yellow Bile and Black Bile. Now it was this which constituted the basis of the famous Humoral pathology. In conditions of health these four humours are mingled together in the proper proportion which was called the "Mixture" (κρᾶσις), i.e., the correct mingling or tempering of the liquids of the body. Disease is a result of a derangement of this "mixture" and then the humours become "Unmixed" (ἄκρητοι); thus when one Humour predominates there is a want of the proper mingling, hence the expression χολὴ ἄκρητος, which means that

the Bile, being no longer kept within the limits of the *κρᾶσις* appears alone. When the humours are deranged they present an appearance different from that of health; thus the skin becomes dry, its colour yellow, and the excreta are altered in consistency and hue; they return to their proper crasis by a process known as Coction.

(3) Coction (*πέψις*). This was a most famous expression in the Hippocratic writings. The term is equivalent to what in modern medicine we should call "Resolution," and its meaning may be explained perhaps somewhat as follows: In the case of a pulmonary catarrh or pneumonia, as the disease improves, the expectoration passes through various transformations, and from having been raw (*ἄπεψία*) it becomes cooked, that is, it undergoes the process of coction. Speaking more generally, in the absence of all knowledge of Chemistry such expressions as Crasis and Coction are employed to explain how the changes are effected in the elementary food substances coming from outside so that they eventually appear as bones, flesh and blood, etc. Thus, ideas of Crasis and Coction correspond in fact to the modern notion of chemical composition and decomposition.

(4) The fundamental condition of health is a correct proportion between work and nutrition in view of the constitution of the individual and of the differences of age, season, climate, and so forth.

(5) *The Crisis*. Every rapid change which in disease brought cure or death, a notable improvement

or aggravation of the complaint was called a "Crisis." It was an important part of the pathological doctrine to know if the Crisis was attached to the process of Coction or was independent of it. These crises, it was thought by the school of Hippocrates, chose by preference certain days in which they were more common or more decisive. While nearly all the rest of the Hippocratic doctrine is based upon facts which can be verified to-day, this doctrine of Crisis cannot be verified with the same facility, and in ancient times even it was combated by Celsus. The great importance attached to particular days in the course of an illness by the Hippocratic School of Medicine was no doubt due to the influence of Pythagoras and the almost mystical meaning which he attached to Numbers; but of this we shall speak presently.

Now as regards Therapeutics, though Hippocrates promised to write a book on Medicines, nothing of the kind has come down to us, but from the various other writings of the Hippocratic Corpus, which we do possess, it is not difficult to deduce his main therapeutic principles.

(1) To commence active treatment at the outset of the disease; this might seem a fairly obvious thing to do, but in Egypt it had been customary to adopt an expectant line of treatment and to do nothing till the fifth day. The word *κινεῖν* (to set in motion), which is here used, is very comprehensive and includes all kinds of treatment.

(2) To abstain from all active treatment at the moment of the crisis of the disease and immediately afterwards. The body should not be submitted to sudden changes, one must proceed by degrees. In the case of wounds one should not interfere with them on the third or fourth day, when the disease is at its height, and the same also applies to acute Disease; and in particular one should avoid the introduction of the sound during these days, and also in the case of sores where there is irritation.

(3) To pay great attention to Diet. This was a most characteristic feature of the Hippocratic School, in fact, in the Treatise on Ancient Medicine in which the origin of Medicine is described, Hippocrates would seem to make Medicine out to be a sort of corollary of dietetics, and here again, we may trace the influence of Pythagoras, who attached the greatest importance to diet.¹ In the Treatise on Acute Diseases, Hippocrates complains that his predecessors had written nothing of importance as regards diet for the sick, and that this was a great omission. Ordinary people, he said, cannot distinguish good doctors from bad ones in the treatment of acute diseases, for they see good and bad alike prescribe barley water, wine and hydromel in these diseases, but the difference between good and bad doctors all depends on how these remedies are applied. Medicine, he said, may be compared to the

¹ The Greek word *δίαίτα* meant "a prescribed manner of life," and had reference not only to diet, but included also baths, frictions and especially exercises.

art of Divination, for there the same bird may be regarded as of good or evil omen according as it appears on the left or right; similarly the value of remedies lies in the manner of their administration. There was clearly in the time of Hippocrates great difference of opinion as to treatment in Acute Diseases, some doctors giving highly nutritious food, others starving their patients; but, apart from such extremes, there was considerable doubt as to whether plain water only should be given, or water seasoned with the admixture of decoctions of barley, whether again this should be given thick so as to constitute a nutritious gruel, or strained so as to form merely a drink, whether wine should be administered in small quantity or more copiously. Hippocrates enters into much detail as to the administration of barley ptisan, whether strained or unstrained. As to wine he says that sweet wine causes less heaviness of the head and affects the brain less than strong wine, it is less diuretic than the strong white wine, but it renders the expectoration easier. Hydromel¹ was constantly employed in acute diseases in those days, in order to clear out the air passages and render expectoration easier. The view held prior to Hippocrates was that it had a weakening effect and was likely to hasten death, because those who let themselves die of hunger take Hydromel only under the impression that it possesses a capacity for "making weak," but such a

¹ Made by boiling honey in a large proportion of water, sometimes as much as 7-8 pints of water to 1 of honey.

notion, says Hippocrates, is a mistake. On the contrary, when drunk alone, it is much more nourishing than water, if it does not upset the stomach. Oxymel he frequently employed in acute diseases, for it expedites the expectoration and relieves the respiration. Water has less effect than any other drink when used alone, but taken in the intervals of Hydromel and Oxymel, water aids the expectoration; it is, however, difficult of digestion, and is neither diuretic or laxative. When, in the case of an acute malady, the physician suspects a heaviness of the head or a seizure of the brain, he will abstain entirely from giving wine and will give water. At the zenith of the disease one should be particularly careful about the feeding of patients, because at that time all food increases the strength of the disease, and one should be specially cautious about not letting them have food immediately after an exacerbation of fever; all changes are harmful, so the patient must be brought back from fasting to food with great care.¹ Hippocrates makes the interesting reflection that "such food as is most grateful to the patient, though not so wholesome, is to be preferred to that which is better though distasteful."² Sydenham, our own English Hippocrates, said in somewhat similar fashion that more importance should be attached to the desires

¹ The treatment of fever prior to his time had certainly been often very drastic, for he tells us that Herodicus, the trainer, "killed his patients suffering from fever by promenading, much wrestling and fomentations." Hipp: Epidem Bk. VI. Sect. 3.

² Aph. II. 38.

and feelings of the patient than to doubtful and fallacious rules of the medical art. Heberden again said: "Physicians appear to be too strict and particular in their rules of diet and regimen, a too anxious attention to those rules hath often hurt those who are well and added unnecessarily to the distress of the sick."

Sudden changes in diet and régime have a bad effect even upon people when in health; thus if a man who is not in the habit of having breakfast takes a meal in the morning, he immediately suffers, becomes heavy in all his body, feeble and inactive; still worse must such sudden changes be in the case of disease.

Speaking generally with regard to people in health Hippocrates held the view that an excess of health was near neighbour to disease, and this idea seems to have been common in Greek thought with its continual insistence on the mean and the avoidance of all extremes in speech and action; thus we find the idea frequently in Plato, who was his contemporary, and also in Aeschylus, who lived before his time, and thus expresses the idea in the *Agamemnon*:

"Surely of great weal at the end of all
Comes not content; so near doth Fever crawl
Close neighbour, pressing hard the narrow wall."¹

μάλα γὰρ τοι τὰς πολλὰς ὑγείας
ἀκόρεστον τέρμα' νόσος γὰρ
γείτων ὁμότοικος ἐρείδει.

¹ Murray's Transl. 1002-4.

Medicine, for Hippocrates, is the art whereby sufferers may be entirely freed from their ailments and severe attacks of disease mitigated, but he held the view curious to our ideas that medical assistance should be refused to those who are incurably ill, since it is clear that in such cases the medical art can effect nothing, and every art must have its limits.

Ætiology. While errors in diet and exercise are considered in the causation of disease, Hippocrates lays most stress upon external influences such as climate, water and the seasons, and we find Herodotus, the historian, saying much the same thing, namely that changes in the seasons and particularly great alternations of heat and cold are specially productive of disease.¹ In the excellent Hippocratic treatise upon "Airs, Waters and Places," the genuineness of which has hardly ever been called in question, the effect of climate and environment generally upon mankind have been admirably described, and it was in particular this treatise which made Galen speak of Hippocrates as the "Prince of Philosophers." For the book is not merely a treatise on Medicine but also on political geography, and when compared with Herodotus, who has much to tell us about climate and its effect on the manners and customs of nations, and who wrote hardly a generation earlier than Hippocrates, the great advance made by the Physician in breadth of outlook and philosophic conception is truly remark-

¹ Hdt. II. 77.

able. Here we have passed in review the varying influences of Winds, Waters and Stars. Now as regards the heavenly bodies it would seem that the Ancients regarded Astronomy and Meteorology as much the same thing, so that we can thus better understand what Hippocrates means when he says "Astronomy is of no small use to the physician, for the state of the digestive organs (*κοιλίαι*) varies with the seasons." He certainly speaks of the importance of observing the stars, saying that the rising of Sirius and Arcturus and the setting of the Pleiades are specially favourable to disease, but he never allows himself to be lost in the wild fancies of the Middle Ages about the stars.

Diseases were said to be less frequent in towns with an eastern aspect, while those which looked westwards were the least favourable for health. How far this belief may have been the direct result of Observation, or how far it was biassed by the view of the Diviner that the east was the generally fortunate side, it would be difficult to say: but the western aspect was thought to resemble the season of autumn, which, among the Ancients, has always been the time of year at which disease was at its height, and this is still true of Greece and Macedonia.

With regard to the choice of Waters, Hippocrates makes the somewhat rash statement that the man who is strong and well need not be particular, but that he can always drink what is nearest to him! On the other hand, like many other physicians in later times,

he attributed to the water coming from snow and ice great influence in the production of certain diseases and specially that of Goitre.

Passing away now from more strictly medical considerations, in this same treatise Hippocrates draws an interesting contrast between Asiatics and Europeans, saying that the former are more soft and less warlike than the Europeans for two reasons: (a) among the Asiatics there are not such great vicissitudes in their seasons in respect of heat and cold, and it is the experiencing of these climatic changes which in his opinion makes races vigorous and warlike; (b) political institutions also have an influence which he thought was proved by the fact that the Greeks who were living in Asia under the same climatic conditions were specially virile and warlike because they enjoyed free institutions, whereas the Asiatics were ruled over by a despotism and it was this fact which helped to render them less vigorous and less competent for war. This feeling of Hippocrates for the vast superiority of the Greeks to the Asiatics who lived under a despotism which had an influence on their spirit no less enfeebling than the climate, would seem to echo the proud verse of Æschylus:

οὔτινος δοῦλοι κέκληνται φωτὸς οὐδ' ὑπήκοοι.

"Of no man have they been called the slaves or subjects."¹

The importance attached by Hippocrates to climate

¹ Æschylus Persae 242.

both in this book and in other parts of his writings has much influenced posterity and Montesquieu in his famous book "L'Esprit des Lois," drew largely from this source. It may be, of course, the effect of climate and localities upon the character and physique of man becomes less pronounced as man gains more and more empire over nature; thus one can hardly think that the climatic conditions of Canada to-day are the same as when Voltaire dismissed that vast region as "quelques arpents de neige."

Various interesting customs of the Scythians are detailed by Hippocrates in this treatise: such as that their women must kill three of their enemies in battle before they are permitted to marry; also that it was their custom to cut off the right breast in infancy. He notes the comparative sterility of the Scythian women, while their female slaves, who do more work and are thinner, are not infertile. Then, again, the fact that the Scythian men were relatively sterile used to be explained by his predecessors as due to a special ordinance of the gods, but Hippocrates said that he did not consider one disease as more divine than another, but gave the rationalistic explanation that the phenomenon might be due to excessive riding (ὕπὸ τῆς ἵππασίης). In a similar fashion when writing upon Epilepsy or "The Sacred Disease," as it was termed by popular superstition on account of its supposed divine origin,¹ he combated the idea of any

¹ By the Romans it was called "Morbus comitialis," because they adjourned the assembly if any member had an epileptic fit.

disease being the effect of divine visitation. Everything is divine, he said, and everything is human; it is unreasonable to call one disease more divine than another: all of them alike are caused by the natural agents of heat and cold, sun and wind, all of which are divine in their nature, but no one of them is in itself unfavourable or untractable or removed from human insight and human influence.¹ It so happens, he said, that epilepsy attacks the phlegmatic and not the bilious; now if it were of divine origin it would attack both bilious and phlegmatic alike. Those who are afflicted with the disease, he said, feel its near approach and flee from the sight of men, not from fear of the Deity but from fear of the disease. Ideas such as these show how far Hippocrates was emancipated from anything in the nature of superstition, and the form of the expression recalls that of his great contemporary, the historian Thucydides. The Four Humours, of which we have already spoken, are, in the medical conception of Hippocrates, intimately associated with the climatic variations of the different seasons: thus in Winter the Phlegm, which is the cold and moist Humour originating in the Brain, is in the ascendant, and consequently at that season we have catarrhal and pituitary affections.² Summer is associated with the Yellow Bile, which is the warm

¹ Gomperz. *Greek Thinkers*. Vol. I., p. 311.

² It is somewhat astonishing to find it suggested in the treatise on Diet that in winter there should only be one meal a day, that it is then better to sleep on a hard bed, to walk and run during the night and to make use of boiled meats rather than roast.

and dry Humour and was derived from the Liver. The Bile and Phlegm were particularly opposed, an excess of Bile giving rise to acute disease, while a superabundance of Phlegm was the cause of chronic maladies. In the Spring the Blood, which is the warm and moist Humour originating in the Heart, gives rise to inflammatory diseases; while Autumn is the season of the Black Bile, the cold and dry Humour arising from the Spleen which is connected with the ailments of that organ. Diseases were thought to be less serious when their nature conformed to the seasons of the year;¹ thus the ardent Fever or “καύσος” is easier to cure in summer than in winter, according to the Hippocratic doctrine, because the symptoms are in conformity with the season.

Before coming in detail to the influence of the Philosophers upon Hippocrates, we must say something of his treatise on Prognosis, for not only is it undoubtedly genuine, but it also gives us the main characteristic of Hippocratic medicine, or at least helps us to understand how that differs from the medicine of the present day.

Now the term Prognosis did not have quite the same meaning for Hippocrates as it has now in modern medicine, where it refers entirely to the future. For Hippocrates, the expression Prognosis had reference not only to the future of the Patient, as it does with us, but also to his past and present con-

¹ Hipp : Aph : II. 34.

dition. (A) As to the Past it gives the means of supplying what the Patient does not know or cannot say, furnishing information upon the accidents to which he has been submitted, the causes which have acted upon him, and the nature of the affection for which he demands assistance; in some degree it corresponds to what we should nowadays call "The Clinical History." (B) As to the Present, it explains the difference existing between the state of health and disease, showing by the degree which this difference has reached the danger which the Patient runs, the chances of safety which remain for him and the intensity of the evil which is overwhelming him. (C) As to the Future, it shows the signs which announce the unripeness or the Coction of the Humours, the approach of the Crises, the days when they ought to burst forth, the issues which they will take and the parts where the critical deposits will be made.

Now the root idea which underlies this doctrine is that the disease has its own course, development and termination, independent of the organ it may affect and the form it may take. According to this system it is more important to consider what diseases have in common than what is special to them: and it is the portions which they have in common that the Physician ought most of all to study and which constitute the foundations of the Prognosis. For, according to Hippocrates, the Prognosis might be regarded as the diagnosis of the general condition, a

diagnosis in which the Physician regards the diseased organ as being of only very secondary importance, or as merely the name of the disease. Now this tendency of the School of Cos to direct exclusive attention to the general condition of the body regarded as a whole harmonizes with the essentially synthetic character of all ancient science; thus Plato in the Charmides says that it is not possible to cure a part of the body without attention to the whole. For a time, in the almost complete absence of any anatomical and physiological knowledge, this attitude was of the highest value to Medicine and saved it from a blind empiricism by gathering together all the scattered facts and linking them up by a common bond. Later on, however, this standpoint impeded the advance of Medicine because it turned men's minds away too much from the study of each disease in particular. From this they were rescued by Galen some five centuries later, but unfortunately his example was not followed in regard to those minute anatomical and physiological investigations which contributed so greatly to the advance of Medicine, while his philosophical speculations were only too readily embraced and darkened medical counsel for more than a thousand years.

We have already mentioned that when Hippocrates came upon the scene there were already several medical schools in existence; of these, that of Cnidos, on the coast of Asia Minor, was the most important. At the head of it stood Euryphon, who was somewhat

older than Hippocrates. He was so advanced as to teach that hæmorrhage could occur from arteries as well as from veins, in contrast to the prevailing teaching which denied that arteries contained blood. Unfortunately this true doctrine of Euryphon fell upon barren soil. However, the advantage which truth has over error is that it can be discovered again. This School of Cnidos not unnaturally by its position had much contact with the East, which probably led it to indulge in far-reaching analogical deductions, particularly those drawn from a comparison of bodily with cosmic processes and from the phenomena of plant and animal life. Their basic principle was almost the direct opposite of that of the School of Cos, for they laid most stress on the study of the varieties of disease and not of the elements common to all diseases. The Physicians of the School of Cnidos used but few remedies except in acute diseases; in chronic disease their treatment was mainly limited to aperients; milk and whey being occasionally given according to circumstances; but the importance of diet this School disregarded altogether, while in the Hippocratic writings, as we have already seen, the value of dieting the Patient is frequently mentioned and three special treatises are devoted to it. Though Hippocrates must undoubtedly have learnt much from the Cnidian School and from the facts which they had laboriously collected, he frequently combats their views, more particularly in the treatise known as "*Ancient Medicine*," which is

among the most famous pieces of Greek prose writing which have come down to us from antiquity. In this work he complains that the School of Cnidos extended too much the description of diseases, making too many varieties and entering into too many details. "These physicians," he says, have not only not omitted anything of the accidents experienced by the sick, but they have pushed the description of details beyond what is required. Now it is not the object of Art to omit nothing of the things which can be known even by persons ignorant of medicine. The object of medicine is an essentially different one, namely to record in writing all that is useful for treatment; so that it will often be necessary to add details which the laity entirely ignore, and to omit much which the laity knows, if it is without importance for the objects which the medical art sets before itself. In particular, Hippocrates condemns the physicians of Cnidos because they had not directed their observations to the issue and course of the disease but were content most of the time with the description of symptoms and accidents. In the medical system of Hippocrates, on the other hand, it was necessary to know not so much whether the Patient had presented this or that special symptom, but what might be the general value of these symptoms, so as to determine what duration, course and issue the disease was likely to have.

The School of Cnidos described symptoms as they perceived them without seeking for the unity of the disease; Hippocrates, on the other hand, sought for

this unity and disregarded for the most part such symptoms of disease as did not seem to lead directly to it, only collecting those from which he anticipated useful teaching. In addition to this, according to Hippocrates, the Cnidian School forgot many things which a physician should know without the patient telling him and which are of importance for the knowledge of the value of the signs. "For when," he said, "the Cnidians wish to tell clearly the species of each disease, they do not write correctly, for the species would be almost innumerable if every symptom experienced by the Patients were held to constitute a disease and receive a different name." This description of symptoms led to the great multiplication of differences between diseases; theirs was a method which modern logicians would call "the colligation of facts," and is poles removed from the true Inductive Reasoning, which was the method of Hippocrates. For his object was not a detailed description of disease, the setting forth of each affection in particular, but to seize the general character of the disease, and on these characters to establish rules which should be equally general. In other words, the Hippocratic Prognosis was only a diagnosis in so far as it applied to the general state of the Patient, while the diagnosis of modern medicine is only a Prognosis in so far as the knowledge of the seat of the disease and of its nature carries with it an idea of the course of the events and of the seriousness which the affection must entail. In passing it might

be said that modern Medicine in its analytical method and its minute investigation of every organ of the body resembles more the School of Cnidos than that of Hippocrates. The main error of the School of Cnidos was to erect fictitious types of disease founded upon unessential characteristics, while the error of the Coan School was to fuse together clinical entities which were pathologically and ætiologically distinct.¹ The end and aim of medical science should be the union of these opposing tendencies.

It is now time to turn to those great philosophic predecessors and contemporaries of Hippocrates, whose wide-reaching speculations and profound reflections could not but influence the medical thought and practice of that time. Greek writers, as a rule, observed a good deal of reticence about their own contemporaries, and so we are not surprised to find in the writings of Hippocrates that two philosophers, and only two are definitely mentioned by name; these are (1) Melissus, the Samian admiral who defeated the Athenian fleet in 441 B.C.; (2) Empedocles—that strange, imaginative genius of Sicily, of whom we shall have more to say in the next lecture. But apart from these two men, whose names appear in the pages of Hippocrates, traces of the influence of various other philosophers such as Pythagoras, Heracleitus, Anaxagoras and Democritus are to be found in the Hippocratic writings.

To begin with Pythagoras; though he was born

¹ Neuburger. History of Medicine, Vol. I., p. 117.

almost exactly a hundred years before Hippocrates (B.C. 562) the influence of his philosophy may easily be seen in several of the Hippocratic treatises, so that it will be well to devote some attention to this most remarkable figure of the 6th century.

Pythagoras, who was born at Samos, according to one tradition appears as a sort of glorified "Medicine man" (γόςης), such as Epimenides had been or Onomakritos who introduced Orphicism into Attica. In his childhood and youth, we learn that Pythagoras, on account of his exceptional beauty, was the wonder of all the surrounding neighbourhood, and on account of his glorious long hair was called κομήτης. After travelling extensively in Egypt, and even according to one tradition, in India, at the age of forty-five he came to settle in Magna Græcia and took up his abode in Croton, famous for its long-standing rivalry with Sybaris. Here he sought out the best of the young nobles and taught them to live an ascetic life of temperance. Into the rule of the oligarchy he breathed a new and more ethereal spirit. Now the selection of Croton, which at this time was famous for its physicians, as the scene of his teaching, is suggestive of Pythagoras having had some special interest in medicine, which he appears to have studied in Egypt. One of the most distinguished physicians of Magna Græcia was Alcmaeon, who was a young man during the old age of Pythagoras and dedicated a book to him. He was the first of the Ancients to make dissections and is said to have dis-

covered the Eustachian tube in goats and also the optic nerves. It was, no doubt, from Pythagoras that Alcmaeon derived his doctrine of "Opposites," according to which the original opposition of the Limited and Unlimited brought forth a series of nine other pairs—the Odd and Even, the One and the Many, the Right and the Left, the Male and the Female, the Straight and the Crooked, the Light and the Dark, the Good and the Evil, the Square and the Oblong. Alcmaeon observed that most human things were two, i.e., Man is made of the Hot and the Cold, the Moist and the Dry. Now disease came into existence when one of these four attained ascendancy in the body, or, as it was expressed, disease was the "Monarchy" of any one of these, while Health was a condition of "Isonomy," or the establishment in the body of a free government with equal laws. It was then from this same Pythagorean source, reinforced by the speculations of Empedocles, of whom we shall speak later, that Hippocrates derived his doctrine of the Four Humours, and it was the proper mingling of these in due proportions which constituted Health. Traces of the idea of the qualities—moist, dry, hot and cold—are to be found in the Rig-Veda. We might remark in passing that the Greek idea of the soul being a Harmony seems to have originated from Pythagoras in connection with Medicine: thus Simmias, the Pythagorean, expresses himself in one of the dialogues of Plato as follows:—"Our body being, as it were, strung and

held together by the warm and the cold, the dry and the moist and things of that sort, our soul is a kind of temperament and attunement of these when they are mingled with one another well and in due proportion. If then our Soul is an attunement it is clear that when the body has been relaxed or strung up out of measure by disease and other ills, the soul must necessarily perish at once.”¹ Health, then, means just being in tune, and disease arises from undue tension and relaxation of the strings; even now we speak of Tonics in Medicine as well as in Music.²

Now just as Thales of Miletus had taught that Water was the ultimate origin and basis of all things, and as Anaximenes had held that the same was true of air, so Pythagoras regarded Number as the fundamental groundwork of the Universe. For he felt that ultimate reality could not be found in Nature with her continual variability, but must be in something beyond the cognizance of the senses which should be expressive of the laws regulating the events of the world, and this he thought he found in Number. According to Pythagoras Numbers possessed not merely complete Reality, but a higher kind of Reality than the concrete objects from which they were derived; Number was a kind of fundamental principle into which the Objective World was not merely dissolved by thought, but from which it actually proceeded. Numerical existence is the only

¹ Plato, *Phaedo*, 86. B.

² Burnet. *Grk Phil*—Thales to Plato, p. 50.

invariable existence, hence things are the copies of Numbers.

The well known doctrine of the "Critical Days," which plays so important a part not only in the writings of Hippocrates but also in those of Galen, was undoubtedly derived from the Pythagorean doctrine of Numbers, and Celsus, writing on Medicine in the early days of the Roman Empire, speaks of the "Critical Days" as the "Pythagorici numeri." Thus diseases which have their paroxysms on even days have their crises on even days, and those which have their paroxysms on odd days have their crises on odd days. The first period of those which have the crisis on the even days is the 4th, 6th, 8th, 10th, 14th, 20th, 30th, 40th, 60th, 100th, and the first period of those which have the crisis on the odd days is the 1st, 3rd, 5th, 7th, 9th, 11th, 17th, 21st, 27th, 31st. It should be known that if the crisis takes place on any other day than on those described, it indicates that there will be a relapse which may prove fatal.¹ "One should mistrust the odd days, for these are decisive one way or the other."

A special belief attached to the efficacy of the number Seven and there is a book devoted to this number in the Corpus Hippocraticum, though it has only been preserved for us in Arabic and a Latin translation. The author of this treatise tells us that the world and the facts contained in it are regulated by the number "Seven," that there are 7 winds,

¹ Epidemics. Bk. I., Sect. 12.

7 phases of the moon, 7 ages of man, 7 seasons—these being (1) σπορητὸς; (2) χειμὼν; (3) φυταλία; (4) ἔαρ; (5) θέρος; (6) ὀπώρα; (7) μετόπωρον.¹ The Head has 7 functions: (1) inspiration of cold air; (2) exhalation of warm air; (3) sight; (4) hearing; (5) smell; (6) swallowing; (7) taste. Then there were seven vowels; the body was composed of 7 elements, namely, (1) heat; (2) cold; (3) Humours; (4) Blood; (5) Black Bile; (6) sweet things; (7) salt things. On this subject of the number Seven the imagination simply ran riot and the author of this treatise spoke of the earth as divided into seven parts: (1) the Head, which was the abode of great spirits; (2) and (3) the Neck and Chest correspond to two countries the names of which are missing from the text; (4) the Thighs, which correspond to the Hellespont; (5) the Feet—to the Thracian Bosphorus; (6) and (7) the Small Intestine and lower part of the Abdomen correspond to the Cimmerian, Bosphorus and Sea of Azov.

Leaving aside such absurdities we may remark that perhaps it was their medical studies which taught the Pythagoreans that the Milk Teeth appear in the 7th month, that the Second Teeth appear in the 7th year, and that puberty synchronises with the 15th year, and that the beard begins to appear at the age of twenty-one: hence he spoke of the age of man as being seven days (ὁ δὲ αἰὼν ἐστὶ τοῦ ἀνθρώπου ἑπταήμερος). Certain it is that the number seven possessed an almost mystical sanctity for the Pythagoreans: thus, the 7-months child was expected to

¹ F. Z. Ermerin's Edit. of Hippocrates 1859.

live, but not the child born at the 8th month (the idea being that the number of weeks is exact in the one case and not in the other); and this absurdity was repeated from century to century and still survives as a hardy superstition. So obsessed did Hippocrates become by the importance of the number Seven that he had seen embryos seven days old in which all the parts of the body were said to be plainly discernible. He was also prepared to prove that abstention from food and drink could not last longer than seven days without causing death.

Hippocrates, as we have already seen, attached great importance to Diet in his therapeutic measures, and here again we may trace Pythagorean influences, for on diet they laid the greatest emphasis and their treatment generally was characterized by an extreme simplicity. They used poultices and salves but little, still less internal medicaments and, least of all, the knife and cautery. To plants Pythagoras attributed magic virtues and he made use of them in the treatment of disease. Between plants and animals he considered that there was a close relation; he spoke of the seeds of plants as eggs and their fructification as gestation. For the bite of a scorpion he recommended wine flavoured with aniseed, and thought that aniseed held in the hand was very efficacious against epilepsy. In the writings of Epicharmus, of the Sicilian medical school, who is said to have heard the teaching of Pythagoras, we find the virtues of the cabbage extolled both as an internal and an external remedy.

But the diet of the Soul had to be considered no less than that of the body, since the Soul was the harmony of the body. For this purpose the Pythagoreans employed music, to which they attached the greatest importance, and they attempted to cure diseases by incantations, a belief in which is to be found in the writings of Plato; they were of opinion that music, if it were properly used, contributed greatly to health.¹ Similarly they employed select sentences from Homer and Hesiod for the amendment of souls, doubtless as much for the sake of the Rhythm as for the meaning. They had, too, special airs which they considered suitable for driving away sadness and expelling melancholy and anger. For purposes such as these they held the lyre to be the most excellent of instruments; on the other hand, the flute was thought by them to have too piercing a sound, they regarded it as an instrument more fitted to put men into a passion than to recall them to good behaviour: altogether it was an instrument of depravity. Scientific and especially mathematical study was regarded by Pythagoras as the best purge for the soul.

This harmony of the Soul and Body seems to have rested on a very finely adjusted balance, for the

¹ The Pythagorean philosopher, Kleinias, when he was in a bad temper, used to take up his harp saying "I am calming myself." In later times music in Greece was also held to be an efficient medicine for some ills of the body; thus Theophrastus, the pupil of Aristotle, asserted that the Phrygian harmonics on the flute were the proper means of curing Lumbago.

Pythagoreans were not permitted to indulge in the most innocent passions, such as effusions of joy, for fear of disturbing the harmony, which word in Greek meant firstly a "tuning" and then a "scale." According to the discipline of the Pythagorean brotherhood every hour of the day was turned to good account, every duty was exactly determined. The whole life of the members of the brotherhood was consecrated to keeping the forces of the Body and Soul in a continual harmony and avoiding the least infraction of the rules of the Order, and the least offence against the moral and physical régime which the master had prescribed.

Now, apart from the definitely direct influence of Pythagoras upon the medical school of Hippocrates, it seems worth while to consider also his indirect influence upon Medicine, that is to say the influence which he exercised as a religious teacher and preacher rather than as a man of science. Whatever importance we may attach to the truth of his travels in India, where he is said to have studied the Brahminical institutions, or in Babylon, where he learnt Arithmetic, or in Egypt where he apprehended Geometry and Theology, and is said to have been initiated into sundry mysteries, there is no doubt that the teaching of Pythagoras implied the introduction of a new spirit which was not characteristically Hellenic.

It was the naïve insouciance of the Greek, combined with an astonishing keenness and freshness of

intellect which has given to Hellenic literature its abiding and perennial charm. For the first time, and perhaps the last, the fresh mind of the child united with the strong intellect of the man confronted the profound problems of the Universe. Undistracted by the multitudinous mass of details which obstruct the vision of the modern philosopher, the Ancients were at least able to see life steadily even if they did not see it whole. Much of the attractive grace of Greek life and literature is due to the fact that some important aspects of thought and feeling were omitted from it. Consequently it was able to present a harmonious front to the world, being in fact at unity with itself, and it is this unity in its life which has exercised so powerful a spell over all future generations of men. But beneath this surface clearness, freshness and insouciance there flowed an undercurrent of darker and more sombre thought which we connect with Orphicism or the worship of Dionysos and the various mystic cults which existed in Greece at the time of Pythagoras, though during the life of Hippocrates and in the period of classical Greece generally they formed but a subordinate feature of its life. The sense of disunion, the sharp separation between the Soul and the Body, the sense of "Sundering," Sünde, Sin, the questioning about a future life and the consequent comparative disregard of this one are conceptions from which the Greeks of classical times were largely exempt. All such ideas are more commonly associated with the

modern world and are often thought to have taken their origin from Christianity. But it is a mistake to suppose that Christianity was in any way responsible for these ideas, for they had their early beginnings at a date long anterior to Christianity in other religions of the East. Whether such ideas were purely Eastern in origin it is difficult to say, but they are certainly to be found in the Orphic mysteries which came from Thrace, and Pythagoreanism, though by no means the same as Orphicism, belongs to the same intellectual family. The Orphics taught that though men were fallen they were yet akin to the gods and might rise again by a system of "purifications" (καθαρμοί); they might win "redemption" (λύσις) from sin and death and dwell with the gods for evermore. For the soul of the Orphic saint (ὁσιος) was immortal; it had existed before his birth and would exist after his death. Orphicism has profoundly affected all subsequent religions and philosophies, and not least those which seem, at first sight, to be furthest removed from it.¹

Differing as the Orphics and Pythagoreans did in many respects, yet they had this in common, namely a belief in "The Fall of the Soul by Sin." The Soul was of divine origin, and its earthly existence was unworthy of it; the body was a fetter, a prison, a grave, only through atonement and purification could the Soul return to the divine home whence it came, such a return was to be accomplished by the

¹ Burnet: *Philosophy from Thales to Plato*, p. 32.

penalties of Hades and by the cycle of births. Both Orphics and Pythagoreans were agreed in their belief as to the glaring contrast between earthly suffering and earthly imperfection on the one hand, and heavenly bliss and heavenly purity on the other. A single earthly existence was not enough to cleanse the Soul from its original sin and to redeem it from defilement. To the disciples of Pythagoras science meant a purification, a means of escape from the wheel of life, for the greatest purification is disinterested science, and it is the man who devotes himself to that—the true philosopher—who has most effectually released himself from the cycle of births; in fact the Pythagoreans at Thebes came eventually to use the word “philosopher” in the special sense of a man who was endeavouring to find a way of release from the burden of this life. Curiously enough there is a tradition that the word “Philosopher” was invented first by Pythagoras; according to the story, when in the Peloponnesus he made the following reply to a question of Leon: “I have no Art, I am a Philosopher.” “What does that mean?” “This life,” he said, “may be compared to those games, which were celebrated with the greatest variety of sports, and the general concourse of all Greece, for, as in this assembly some seek glory and the crowns, some by the purchase or sale of merchandise seek gain, and others more noble than either go there neither for gain nor for applause, but solely to enjoy the wonderful

spectacle and to see and know all that passes—we, in the same manner, quit our country, which is Heaven, and come into the world, which is an assembly, where many look for profit, many for gain, and where there are but few who, despising avarice and vanity, study nature. It is these last whom I call ‘Philosophers’: for, as there is nothing more noble than to be a spectator without any personal interest, so in this life the contemplation of things and acquainting oneself with them, greatly excels every other pursuit.”¹

That there were distinct elements of asceticism about the system of Pythagoras admits of no reasonable doubt, but, unlike the Eastern anchorites and monks of the Middle Ages, Pythagoras did not despise the body, but believed in the excellence of bodily vigour. His intellectual curiosity, however, did not lead him to study disease in much detail, for disease was the exception to the norm, the jarring note, which perhaps was not worthy of much study; he was more interested in health as such, how its delicate balance could be maintained, how, in the words of a modern writer, the body could become the quiet handmaid of the Soul.

Mystical speculations and personal intuitions can never in the realm of science bear the same positive fruit as the patient investigation of material phenomena; at the same time such speculations serve to fertilize science and by bringing it into contact with

¹ Cicero. *Tusc. Quaest. Lib. V. 3.*

the whole circle of contemporary thought, prevent that too great isolation from life which is the danger to which science is specially liable. The effect of the teaching of Pythagoras upon Medicine was to keep it in close connection with the philosophic thought of the time. But what claims our particular interest is the combination of a mystical vein and ascetic practice with considerable scientific curiosity and attainments united with a belief in the excellence of bodily vigour and a rational method of trying to maintain it. Many echoes of the Pythagorean doctrines may be found in Plato, and particularly in the dialogue of the *Timæus*, which is put into the mouth of a Pythagorean, who says : “He who instead of accepting his destiny endeavours to prolong his life by medicine is likely to multiply and magnify his diseases; regimen and not medicine is the true cure when a man has time at his disposal.” We have seen what a large part regimen and diet played in the system of Hippocrates and also how he refrained from treating diseases which were obviously incurable. Doubtless, from most of these mystical speculations, which at that time never degenerated into charlatanism, Hippocrates was in the main entirely free, but it has seemed well to indicate something of this mystical background which existed in his time, and although it was never a dominant feature of Greek thought in the 5th century, yet it was there as a factor to be reckoned with, as it has been in all ages.

LECTURE II

HIPPOCRATES IN RELATION TO THE PHILOSOPHY OF HIS TIME

IN the last lecture we were speaking of Pythagoras, but we will now turn to Heracleitus, who seems to have influenced Hippocrates almost more than any other philosopher, though his strange and gloomy temper was entirely foreign to the serious yet cheerful dignity of the Physician. The restless, undisciplined, wayward temperament of the Ionian philosopher was restrained and tempered by what we might term the Dorian mood of Hippocrates, who was Ionian in language only, not in Thought or Feeling; constant contact with facts had disciplined without blunting his imagination.

Born at Ephesus about 535 B.C., nearly 30 years later than Pythagoras and some 70 years prior to Hippocrates, Heracleitus was a descendant of the City Kings there, and had indeed claims to the monarchical office, which he is said to have resigned in favour of his younger brother. Nevertheless, he frequently intervened in Politics, taking sides with the aristocrats in the feuds of the time and feeling such contempt for the popular government of the

City which had banished his friend Hermodorus that he retired into solitude among the mountains. In his wrath, he exclaimed : " The Ephesians would do well to hang themselves, every grown man of them, and leave the city to beardless lads ; for they have cast out Hermodorus, the best man among them, saying, ' We will have none that is best among us, if there be any such, let him be so elsewhere and among others.' " ¹ Heracleitus was a convinced aristocrat and had a sovereign contempt for the mass of mankind. He ended his days alone among the mountains far from his native city, living on herbs and roots like an ascetic ; but he first deposited the manuscript of the fragments which have come down to us in the temple of Artemis. For a time he had been a priest of the branch of the Eleusinian Mysteries in Ephesus, which may perhaps account for the somewhat hierophantic style of his writings, a feature to be noticed in his younger contemporaries, Pindar and Æschylus, and he himself appealed to the prophecies of Apollo and the voice of the Sibyl as types of his own oracular manner, " for they neither utter nor hide their meaning but signify it."

In the ancient world Heracleitus was known as the " Weeping Philosopher," and his countrymen applied to him the epithet of σκυτείνος, which may either have referred to the gloominess of his temperament or to the obscurity of his writings, though these are obscure in form rather than in content. Un-

¹ Ritter and Preller, 296.

doubtedly, he was a man of great pride and self-confidence, holding himself aloof from all intercourse with his fellow men, for whom he had a most hearty contempt. To all objects of popular belief he was firmly opposed, inveighing against the abominable rites of the Dionysiac worship and also against the unhallowed observance of the mysteries. He said that it was absurd to celebrate the worship of Dionysos by cheerful and licentious ceremonies, while Hades was propitiated by gloomy rites. According to the mystic doctrine itself the two were really one, and the one wisdom ought to be worshipped in its integrity. To Heracleitus the worship of images seemed contemptible, "As if," he said, "a man should chatter to a stone wall." He despised the system of sin offerings which expiated one stain by another, saying that it was just as if a man who had stepped into mud were to wash himself clean with mud. Any man who marked him doing that would deem him mad.¹ Of the general mass of the people he said that they fill their bellies like cattle and ten thousand do not turn the scale against a single man of worth. When playing with some children, near the temple of Diana, he answered those who expressed surprise at seeing him thus occupied: "Is it not better to play with children, than to share with us the administration of affairs?" Of his philosophic predecessors he had but little better opinion, speaking of Pythagoras, Xenophanes and Empedocles as being

¹ Ritter and Preller, 49a.

merely masters of much learning which does not instruct the mind, in fact he considered them to be "deep versed in books but shallow in themselves." The hearing of many things, he said, teacheth not the understanding, else would it have taught Hesiod, Pythagoras, Xenophanes and Hecataeus.¹ The only exceptions to this general contempt were Anaximander, to whose doctrines he felt himself indebted, and Bias of Priene, whose simple counsels of practical wisdom he admired. Wisdom is not, he said, the knowledge of many things; it is the clear knowledge of one thing only, and this he describes as The Word (λόγος) which is "true evermore," though men cannot understand it even when it is told to them. Now this "Word" or ultimate Truth was for Heracleitus the perception of the underlying unity of warring opposites, for the apparent strife of opposites in this world is really due to the opposite tension which holds the world together. "All things are in a state of flux and reflux"—πάντα ρεῖ. "No one has ever been twice in the same stream; for different waters are constantly flowing down; it dissipates its waters and gathers them again—it approaches and it recedes—it overflows and falls"; "all is in motion, there is no rest or quietude." This then is the famous Philosophy of Motion in direct contradiction to the Eleatic philosophy which, as we shall see later, represented the philosophy of Rest. The fact that everything is continually pass-

¹ Ritter and Preller, 31.

ing over into something else proves that it is one nature which assumes the most opposite forms and pervades the most various conditions. Like the earlier philosopher, Anaximander, he was impressed by the transitoriness of all single objects, the ceaseless transformation and mutation of things. All objects, he said, are always moving, though their movements elude our observation; thus, in some sense Heracleitus anticipated the conclusions of modern science, which takes it for granted that the molecules of matter are always vibrating or in movement, though their movement may be imperceptible. He considered that all life was involved in continual decomposition and renewal. The harmony of opposites Heracleitus illustrated by the painter who produces harmonious effects by means of the contrast of colours, and by the musician, who accomplishes the same results with high and low notes; the dissonant is in harmony with itself; if one were to make all things alike there would be no delight in them.

This apparent strife of opposites in the world is really due to the opposite tension which holds the world together,¹ and it is this doctrine of Heracleitus which anticipated Hegel's celebrated dogma that: "Being and Not-being are the same," which still powerfully influences the modern philosophical world. The world is at once one and many, and it is just the "opposite tension" of the many that constitutes the

¹ Burnet, *Greek Philosophy, Thales to Plato*, p. 62.

unity of the one. But Heracleitus conceived that all these oppositions disappeared in pure Fire, which is the Eternal Wisdom. Fire was for him the type of spontaneous force and activity, not flame, which was only an intensity of Fire, but a warm dry vapour—an ether. The world, he said, was neither one of the gods nor man; it was and is and ever shall be, an ever living fire in due measure self-enkindled and in due measure self-extinguished. (This animating Fire (πῦρ αἰεζῶον) is not the fire visible to the eye, but is far subtler, always in motion, penetrating and vitalising everything.)

The Opposites which seem specially to have impressed the mind of Heracleitus were those of Sleeping and Waking, Life and Death. Now the elements Fire, Water and Earth corresponded to Life, Sleep and Death. The human soul, such as is endowed with Reason, is an emanation from the Universal Mind, it is united with an animal nature, in common with the lower orders of creation. When in a state of Waking man breathes in the Universal Soul or Mind and readily unites with creative intelligence; thus Reason enters man from without just as air does. And so the soul is only fully alive when it is awake, sleep is really a stage between Life and Death. Sleep and death are due to the advance of moisture; it is death to Souls to become water. Waking and Life are due to the advance of Warmth and Fire, and the dry Soul is the wisest and best. If we keep our souls dry we shall understand that good

and evil are the same, that is, that they are only passing phases of one Reality that transcends the world. Sleep alternates with Waking just as Life alternates with Death. Night and Day, Summer and Winter alternate in the same way and this is due to the successive advance of the Wet and the Dry, the Cold and the Hot. Fire is the primary Reality and the process of combustion is the key both to human life and to that of the macrocosm. It is a process of unresting motion, for a flame has to be fed by fresh exhalations as fuel, and it is always turning into vapour or smoke. Heracleitus supposed that there was a certain longing inherent in Fire, to gratify which it constantly transformed itself into some determinate form of being, without, however, any wish to maintain that form, but in the mere desire of transmuting itself from one form into another. The steadiness of the flame depends on the "measures" of fuel kindled and the "measures" of fire extinguished in smoke remaining constant. Now as the world is an ever-living fire there will be an unceasing process of flux. "The Way Up and the Way Down," which are "one and the same," are also the same for the Microcosm and the Macrocosm. Fire, Water, Earth is the way down, and Earth, Water, Fire is the way up. These two are for ever being traversed in opposite directions at once, so that everything really consists of two parts, one part travelling up and the other travelling down.

Heracleitus further taught the Relativity of Quali-

ties, saying that sea water is at once the purest and most disgusting thing, being drinkable and wholesome for fishes, undrinkable and noxious for man; hence good and bad are the same! This means that they are two inseparable halves of one and the same thing. Nothing absolute could be recognised in Good or in Evil, consequently nothing could be unconditionally rejected or accepted. Like Protagoras, he comes near to saying that "man is the measure of all things," certainly he explained the world by man rather than man by the world; it is the microcosm which furnishes the key to the macrocosm. "L'homme n'est qu'un point dans l'univers, mais l'univers ne comprend pas l'homme, tandis que l'homme comprend l'univers." "Man," says Pascal, "is but a point in the universe, but the universe does not understand man, while man understands the universe." This very important conception was anticipated by Hippocrates, who said that in his opinion certain knowledge of nature can only be gained from man and medical science; here surely we may detect the conjecture that all our knowledge about nature is relative and that the true goal of human enquiry is not what nature is in herself, but what she is in relation to man's perceptive faculties. As to Fire, we find in one of the Hippocratean writing the following: "I am of opinion that what we call Heat is immortal, and understands, sees and hears all things that are and will be."¹ Again we are

¹ Hipp: de carnibus; Sect. II.

reminded of Heracleitus by a passage in the treatise called "The Winds" (περὶ φύσων), in which Hippocrates says that the "Healing Art is an adding and a taking away, a taking away of what is superfluous and an addition of what is wanted; he who fulfils this double indication is the best physician" (ἱητρικὴ γὰρ ἐστὶ πρόσθεσις καὶ ἀφαίρεσις, ἀφαίρεσις μὲν τῶν ὑπερβαλλόντων, πρόσθεσις δὲ τῶν ἐλλειπόντων· ὁ δὲ τοῦτ' ἄριστα ποιέων ἄριστος ἱητρός).

In the Treatise on Diet (περὶ διαίτης), though there are doubts about its Hippocratic authenticity, we find the very words of Heracleitus are used in speaking of the steady, ceaseless transformation of matter. For Heracleitus had applied his theory of the Cosmos to man, who, like the Macrocosm, is made of Fire, Water and Earth, but as in the case of the world the Fire is the only important element and is identified with the one wisdom, so in the Microcosm Fire alone possesses consciousness. When the fire has left the body, the remainder, the mere earth and water, is altogether worthless. In our last lecture we pointed out how one of the main ideas underlying the Hippocratic Medicine was that the human body was animated by an innate heat (θερμὸν ἔμφυτον), the evaporation of which was the cause of death. Now the Fire which animates man is subject to the "upward and downward" path just as much as the fire of the world; in the Treatise on Diet Hippocrates, in the complete Heracleitean vein, says: "All things are passing, both human and divine, upwards and

downwards by exchanges." Thus we ourselves are just as much in a state of flux as anything else in the world. We are not the same for two consecutive instants. The Fire within us is perpetually becoming water and the water earth, but as the opposite process goes on simultaneously we appear to remain the same. It should be noted that the ancients when they saw fire quenched by water regarded this as the encroachment of the watery element upon the fiery. Like the Macrocosm, man is subject to certain oscillations in his measures of Fire and Water, which give rise to the alternations of Waking and Sleeping, Life and Death. Sleep was produced by the encroachment of moist, dark exhalations from the water in the body, which causes the fire to burn low. In a soul where fire and water were evenly balanced, the equilibriums would be restored in the morning by an equal encroachment of the fire on the water.

It would be easy to exaggerate the influence of Heracleitus upon Hippocrates owing to many similarities of expression, but the fact is that Heracleitus was less of a man of science than Pythagoras and the Ionian philosophers generally; natural science owes nothing to him. He was indeed widely read in antiquity but his influence was mainly that of the metaphysician. He sought to disclose the world soul from the human soul; an invisible harmony lay hidden behind the chaos of the sensual world, the object of wisdom was to unveil it. From the numerous changing colours, which the human eye

displays to us, the object is to behold the single glow of the original, everlasting fire of the sun with the bright eye of the Spirit; and this can only be done by those who love wisdom (φιλόσοφοι ἄνδρες). Of all ancient philosophers Plato and Plotinus were most inspired by him, but as we have suggested before, his influence may be traced in the philosophic idealism of to-day. Much as Hippocrates must have observed and reflected, he did not reflect upon Thought and might have been pleased to echo the cry of Goethe: "My child, I have been very clever, I have never thought about Thinking" ("Mein Kind, ich habe es klug gemacht; ich habe nie über das Denken gedacht"). Or, like Plato himself, he may have felt that the study of Philosophy, if made a serious business, involves grave results to the mind and life of the student. For it may encumber him without enlightening his path and it may weaken his natural faculties of thought and expression without increasing his philosophical power. The mind easily becomes entangled among abstractions and loses hold of facts. The glass which is adapted to distant objects takes away the vision of what is near and present to us.¹

In spite, however, of this undue preponderance of metaphysics in the writings of Heracleitus, his influence was far more favourable to medicine than that of the School of Elea as represented by Parmenides and Melissus, to whom we must now turn.

¹ Jowett, Plato, Sophist, Introd.

Parmenides, though not actually the founder, was the most distinguished representative of the Eleatic School of Philosophy. Born about 510 B.C., he spent most of his life in Italy in the Greek colony of Elea, which had been founded some thirty years previously. At the age of 65 he came to Athens, accompanied by Zeno, and there conversed with Socrates, who was a young man at that time. Like many of the older philosophers Parmenides took part in Politics, and it is recorded that he legislated for his native city. According to one tradition the magistrates made the citizens swear every year to abide by the laws which Parmenides had given them. Earlier philosophers had represented the ultimate form of matter as Water, or Air, or Fire; Parmenides took, so to speak, a more metaphysical view and regarded the ultimate form of matter as the one Eternal Substance, which is neither generated nor destroyed, thus adopting a position which was in complete opposition to that of Heraclitus; thus he stigmatized as the twin roads of error (1) the ordinary, common-sense view which believed in the world of the senses; (2) the doctrine of motion promulgated by Heracleitus, which Parmenides felt to be radically false, and so he made his primary substance simply "Being, which was unchangeable as well as Eternal," and he added qualitative to quantitative constancy.

Parmenides disbelieved in a vacuum, saying that there was no such thing as "empty space" either inside or outside the world, consequently there could

be no such thing as motion, for there is no void into which motion can move. Heracleitus has endowed the One with the power of change and thus rendered it capable of explaining the world, but Parmenides dismissed change as an illusion, saying: "The Thing that is, is an indivisible whole, uniform, continuous, similar in all its parts, not being less here and greater there, but resembling the bulk of a well rounded and equally weighted ball"; "Only that can exist which can be thought; for thought exists for the sake of what is."

According to Parmenides, "Thinking and Being are the same." Thinking and that of which it is the Thought are the same. For him, as for Spinoza, the Real was the Thinking and the Extended; his material Being was also a spiritual Being, it was indeed at once universal matter and universal Spirit, but the matter is sterile because incapable of expansion and the Spirit powerless because incapable of action.¹

Parmenides carried out his system with great logical rigidity, so that it became obvious that Philosophy would have to cease to be monistic or cease to be corporeal; it could not cease to be corporeal because the incorporeal was still practically unknown—no one having yet imagined that there was any Reality other than a Sensible Reality; consequently he was forced to abandon the monistic position and so paved the way for the atomic theory,

¹ Gomperz, *Greek Thinkers*, Vol. I., p. 179.

which so far as we know is the last word of Science on the view that the world is matter in motion.¹ Melissus, the Samian admiral, who is definitely mentioned by Hippocrates by name, and whom we know to have lived about the middle of the fifth century, because he gained a victory over the Athenian fleet in 441 B.C., was a disciple of Parmenides and in fact the real systematizer of the Eleatic school. In some sense he was a mystic, but he differed from the majority of mystics in that, like the great Neo-Platonist Plotinus, he endeavoured to support his conclusions on logical grounds, and did not rely merely on an inward light or intuition. He maintained the unity and indivisibility of Being, denied the possibility of all change and motion, and consequently all division and mixture. Like Parmenides, Melissus disbelieved in the evidence of the senses, saying "that things often show themselves changed in the sequel which would be impossible if they were really so constituted as they at first represented themselves to us." This disbelief in the senses was also shared by Heracleitus, but the Eleatic school disbelieved in the senses because they represent things as changing when they are really fixed, while Heracleitus disbelieved in them because they represented things as fixed when they were really changing.

Clearly the Eleatic Philosophy must have been most unfavourable to medicine, for it seemed to sterilize all possibility of knowledge and was there-

¹ Burnet, *Early Greek Phil.*, 2nd Ed., p. 206.

fore vigorously attacked by Hippocrates in the person of Melissus, whom he selected to mention by name. In the book, "On the Nature of Man," Hippocrates opposes the Eleatic view that the Universe is composed of one unchangeable, eternal substance which underlies, or is the common basis of all the elements—fire, air, earth and water, by saying that if a man were made of but one substance he would never be ill, for what could be the cause of suffering for so simple a creature. For since ill health is a result of a disharmony of the primitive humours or elements, assuming there were only one substance, on the principle that it takes two to make a quarrel, there could be no disunion and therefore no illness. However, supposing that a man did fall ill, then, according to the logic of the School of Elea, the remedy ought to be one, whereas in fact there are numerous remedies. Furthermore the very fact of Generation also shows that the human body cannot be constituted of one substance only. Doubtless, too, in the treatise on "Ancient Medicine" it is the Eleatic school which Hippocrates is opposing when he says that no one should place Medicine on any kind of hypothesis, for Medicine possesses positive facts from which one ought to start in preference to every kind of hypothesis. Science is not to be separated from facts, for that would be to separate it from its root and strike it with sterility. No practical use can be made of "Empty Hypotheses," for when a man is ill from a certain diet how can he tell whether it is the hot or

the cold, the moist or the dry, that has made him ill. By "Empty Hypotheses" Hippocrates meant hypotheses which were incapable of proof; it is one thing to make an erroneous hypothesis, quite another thing to make an unscientific hypothesis, which is entirely or partially incapable of verification. Medicine has no need of an empty supposition, differing in that from things which are occult and doubtful, for which, if one must discourse about them, one must necessarily make use of hypotheses, as for instance in disquisitions upon celestial bodies or bodies under the earth; when he who talks on such subjects pretends to know what these objects are, neither he nor those who listen to him have any evidence of the truth or falsity of his assertions, for all verification is impracticable in such cases.¹ The influence of Parmenides may again be traced in the Hippocratic treatise on Diet, where the elements of the animal and human body are described as two in number, namely Fire and Water. All animals, including man, are made up of these two substances, differing in their proportion, but alike in their use. The one cannot get on without the other. Fire he recognised as the universal principle of movement and Water as the universal principle of nutrition. Now the condition of the permanence of the universe in its existing state is that neither of the two elements shall gain dominion over the other and the connecting link between the physiological and material doctrines is

¹ Littré Hippocrates, Vol. IV., p. 653.

the idea of an equilibrium between the performance of work and nourishment on the one part and between the cosmic agents of these functions on the other. When, he says, Fire reaches the outermost boundary of water it begins to lack nourishment, so it turns round and reverts to the sources of its nourishment; when Water reaches the outermost boundary of Fire, it begins to lack movement, so stands still and becomes the prey of the fire which is in want of nourishment.

Leaving now Parmenides and the Eleatic School, whose influence upon medicine was so far from beneficial and who were, as we have seen, strongly opposed by Hippocrates, we will now consider that other philosopher, who, next to Heracleitus, exercised the greatest influence upon Hippocrates and whose name is mentioned in the Hippocratic writings: we mean, of course, Empedocles. He was one of those strange, highly gifted men, whom the intense intellectual life of the Greek colonies in the fifth and sixth centuries B.C. seemed so readily to produce. Politician, orator, poet, physician and mystic, such was the remarkable combination of qualities which Empedocles presented to his fellow countrymen. Born of an aristocratic family at Agrigentum, in Sicily, between 500 and 480 B.C., he lived for the most part a solitary life, but at one time took part in the politics of his native city and, as leader of the Democracy there, overthrew the rule of the nobles who had oppressed the city for eight years. It will

be remembered that Heracleitus in his political career had sided with the Aristocracy.

At the height of his popularity he refused the royal crown, as his ambition was not an earthly throne but a celestial one : " I am," he said, " an immortal God unto you, look on me no more as a mortal." In purple vestments, with a golden girdle, the priestly laurel bound in the long hair that framed his melancholy features, and surrounded by the hosts of men and women who worshipped him, Empedocles made his progress through Sicily.¹

He was said to have freed the city of Selinus from a deadly pestilence by draining the soil ; it was he who bored through a rock and opened a road for the north wind so as to give a more wholesome climate to his native city of Agrigentum. Numerous were the stories of his marvellous medical powers ; thus he was said to have awakened from a state of catalepsy a victim who had lain for thirty days like a dead woman without pulse or breath, and Gorgias of Leontini, of whom we shall speak later, was said to have seen him perform many magic feats. About the age of sixty he appears to have been exiled from his native town by the fickle mob and to have succumbed to an accident in the Peloponnese. According to a popular legend he threw himself into the crater of Mount Ætna so that he might pass for a god, the cause of his death being unknown ; unfortunately one of his

¹ Gomperz, " Greek Thinkers," Vol. I., p. 228.

brazen sandals was thrown out in an eruption, and so the secret of his mortality was revealed.

In his youth Empedocles was influenced by Orphic ideas and in later life he preached a form of Pythagoreanism which was not considered orthodox by the heads of that society. Certainly he believed in the transmigration of souls and in fact thought he had himself been a boy and a girl, a bush and a bird and a dumb fish of the sea; he considered that mundane existence was the doom of such immortal souls as had been disgraced in Heaven and consequently had been thrust out of their heavenly home, to the unamiable fields, the joyless place, the valley of lamentation. Thus he enunciates the Fall of man :

This is the law of Fate, of the Gods an olden enactment,
 If with guilt or murder a Demon (i.e., an immortal soul)
 polluteth his members,
 Thrice ten thousand years must he wander apart from the
 blessed,
 Hence, doomed I stray, a fugitive from Gods and an outcast,
 To raging strife submissive.¹

The fate of the soul, however, he regarded as being dependent on the acts of the men, whose bodies it temporarily inhabited, at the same time reducing the mental disposition, which was the source of their conduct to the material composition of their bodies.

In Philosophy, the system of Empedocles was an attempt to mediate between the Monism of Parmenides and the Eleatic School and the Pluralism of

¹ Ritter and Preller, 181.

Heracleitus, or rather between Eleaticism and the Senses, for, unlike Parmenides and Melissus, Empedocles would not reject the assistance of the Senses, though he realized their imperfection in the search for Truth. Still he said: "They are the only channels through which knowledge can enter our minds at all: we must make use of all of them and neglect the testimony of none, not even that of taste."

Though Empedocles was a Pluralist as opposed to the Monism of the Eleatic School he stopped short of the Atomic theory. In Physics he made the important discovery that atmospheric air is a distinct corporeal substance and is not to be identified with empty space on the one hand or rarefied mist on the other, "the roots of all things," he said, "are eternal, nothing can come from nothing or pass into nothing." "Fools they are," he said,

" ' Who think that aught can begin to be which formerly was not,
Or, that aught which is, can perish and utterly decay.
Another truth I now unfold; no natural birth
Is there of mortal things, nor death's destruction final;
Nothing is there but a mingling, and then a separation of the
mingled
Which are called a birth and death by ignorant mortals.' "¹

The Wind was explained as due to the opposite motion of the fiery and airy hemispheres; Rain was caused by the compression of the air which forced any water there might be in it out of its pores in the form of drops; Lightning was said to be Fire forced out of the clouds in much the same way.

¹ Ritter and Preller, 165a.

In Biology, Empedocles discovered the labyrinth of the ear by dissecting goats and, as we gather from Aristotle, he attributed desire, sensation and capacity for Pleasure and Pain to Plants; he also perceived that in Plants the two sexes were combined. Plants, he said, had come into existence while the world was still in an imperfect state, in fact at a time when strife had not so far prevailed as to differentiate the sexes. That he had some insight into comparative anatomy is shown by his saying that "hair and leaves, the thick feathers of birds and the scales that grow on mighty fishes are the same thing."

Empedocles made sundry quasi-medical speculations; he is said to have written not less than 6,000 verses on Medicine, and he wrote a book called *ιατρικὸς λόγος*. He thought fever arose from an excess of innate heat and held certain views about Respiration. Thus he said: "We breathe through all the pores of the skin and not merely through the organs of respiration. Alternate inspiration and expiration of the breath are caused by the movement of the blood from the heart to the surface of the body and back again. All things draw breath and breathe it out again! All have bloodless tubes of flesh extended over the surface of their bodies, and at the mouths of these the uttermost surface of the skin is perforated all over with pores closely packed together, so as to keep in the blood while a free passage is cut for the air to pass through. Then when the yielding blood recedes from these, the bubbling air

rushes with an impetuous surge, and when the blood runs back it is breathed out again." Perception, he thought, was caused by the meeting of an element in us with the same element outside; our knowledge varies with the varying condition of our bodies. In some measure it would appear that Empedocles had an inkling of the doctrine of Evolution, for he said that the less perfect proceeded from the more perfect; thus in the beginning of things single limbs were supposed to have sprung from the earth, heads without neck or trunk, arms without shoulders, and eyes without a face. At a later stage the scattered limbs are united; at first they were combined in all possible ways; there were oxen with human heads, creatures with double faces and all manner of monsters. Only such combinations of limbs survived as exhibited an inner harmony and so evinced themselves as fit for life and were attracted together by the action of "Love." Animals full of air seek the air, those full of water seek the water, while those with a preponderance of earth in them have a natural bias to the earth. Aquatic animals are those in which water predominates, but this does not apply to fishes, which are very fiery, and take to the water to cool themselves. In the struggle for existence only those survived which were best adapted for their environment.

This veiled vision of Evolution differed from the Darwinian theory in that according to the modern doctrine all evolution proceeds from Homogeneity in

structure to Heterogeneity, but Empedocles assumed that the various creatures started with being Heterogeneous, but gradually passed into a condition of Homogeneity. We might say in passing that the Greeks seemed to consider variety of form as inferior to oneness and singleness, just as moral evil was associated in their mind with a complex character.

Matter itself, Empedocles seems to have regarded as endowed with consciousness, and he drew no distinction between the animate and inanimate worlds. The superiority of organic beings to the inorganic creation he thought was due to the latter containing but a few elements or one only. Everything possesses the power of Thought and a share in the understanding; the chief seat of Perception was the blood, in which the four Elements are most evenly mixed, and especially in the blood near the heart; the blood was particularly sensitive because of its finer mixture.

Now the doctrine of Empedocles which had most influence upon Hippocrates was that of the Four Elements, or, as they were called by Empedocles, "the roots of all things." These Elements were the time-honoured "Fire, Earth, Air and Water." He describes them as always alike, unchangeable and all equal, also they are ultimate and there is no further division of them possible, in fact they were elements in our sense of the term; they were, however, in juxtaposition and not a "mixture" as Hippocrates believed. It was then these elements which the medical school of Hippocrates identified with the Hot

and the Cold, the Moist and the Dry, from which came the four Humours of Blood, Phlegm, Yellow Bile and Black Bile, the proper mingling of which, in accordance with the Heracleitean principle—a purely physiological conception—determines Health and Disease. But Empedocles, unlike the Eleatic School, believed in Change and Motion, so in order to produce among his elements Change and Motion he had to introduce two other substances from outside so to speak, namely Strife and Love. Now the task of Strife was to separate the elements in the mixture, while that of Love was to bring them together again. This was the same impulse to union as is implanted in human bodies; he looked at it, in fact, from a purely physiological point of view. No mortal, said Empedocles, had yet marked that the very same Love which men know in their bodies had a place among the elements.¹ Both Love and Strife are corporeal existences like the Four Elements, for nothing incorporeal had been thought of at this stage of philosophic development in Greece.

Greatly as Hippocrates was indebted to Empedocles for his doctrine of the Four Humours, on one important point we find him much ahead of the Sicilian philosopher and even of Aristotle, for, whereas Empedocles and Aristotle regarded the Heart as the organ of Consciousness, Hippocrates attributed all intellectual and moral functions to the Brain. The mind, said Hippocrates, is in the Brain like some

¹ Burnet, *Early Greek Philosophy*, 2nd Ed., p. 267.

sacred ornament in the acropolis of the body καθάπερ τε ἱερὸν ἄγαλμα ἐν ἀκροπόλει τοῦ σώματος (Soranus) and he and the Coan School generally regarded the Brain as the seat of all mental disorders, whereas the Sicilian School thought they had their origin in the heart. Thus the followers of Empedocles, Praxagoras and Diocles considered that "religious enthusiasm or ecstasy," which they regarded as a mental disorder, was an affection of the Heart and Aorta. In his Treatise on the Sacred Disease or Epilepsy the Physician clearly has Empedocles in mind when he combats all ideas of magic which were still believed in by the Philosopher and the Sicilian School of Medicine which took its origin from him. Thus Hippocrates says: "Those who consider Epilepsy to be a disease specially sent from the gods are Magicians (μάγοι), Purifiers (καθαρταί), Charlatans (ἀγύρται) and Quacks (ἀλαζόνες), who pretend to be very religious and to have some superior knowledge. Such people, he said, make of the Divinity a cloak and pretext wherewith to shelter their own incapacity for doing what is useful and in order to prevent their ignorance from becoming obvious they give out that the Disease is Sacred. But if these sufferings could be cured by the purifications and the rest of the treatment they recommend, what should prevent their creation for the infliction of mankind by other similar contrivances? Then, however, their cause would no longer be divine but human: for the physician who is able to dispel a disease by magical and purificatory

means could surely introduce the same by setting other means at work, and then there would be an end of the divine and of its efficacy. If it were true that a man could fetch down the moon and make the sun disappear, could summon the storm and recall fair weather by sacrifices and the black arts, I should hold that there was nothing divine in all that, but that it was all human, for in such cases the power of the divinity would be subdued to the yoke of human intellect." Now it cannot be denied that some elements of charlatanism did attach to Empedocles, which would be peculiarly abhorrent to the staid and sober mental temper of Hippocrates, yet the fact remains Empedocles did definitely advance scientific progress. Galen regarded him as the founder of the Italian School of Medicine, and certainly in maintaining, as against the School of Elea, that we must not reject the evidence of the Senses, for they are the only channels through which knowledge can enter our minds at all and that we must not attempt to construct a theory of the universe offhand, instead of trying to understand each thing we come across in the way in which it is clear, he undoubtedly helped to deter men from becoming enslaved by the logomachies of his immediate predecessors.

Very different in general mental temper from Empedocles is the philosopher Anaxagoras, who now comes before us. No one could possibly have accused him of charlatanism. Though he is nowhere directly mentioned by name in the Hippocratic

writings, the speculations of this Ionian philosopher undoubtedly exercised some influence upon Hippocrates. There was indeed a certain severity, not to say austerity, about Anaxagoras, which would well have suited with the character of Hippocrates. The Greek word *σεμνός* well describes them both, but the English equivalent "solemn," with its half suggestion of pomposity, does not give the correct conception of either. That this gravity of demeanour was a special characteristic of Anaxagoras we learn from Plutarch, who, in his life of Pericles, says that it was the philosopher who first "did put into the Athenian statesman the majesty and gravity he shewed in all his sayings and doings so that he did far excel the common course of ordinary orators that pleaded before the people."

Anaxagoras was born at Clazomenae in Lydia, not far from Smyrna, about 500 B.C., and was thus a few years older than Empedocles. The son of aristocratic parents, he is said to have neglected his patrimony and to have devoted himself at an early age to the exclusive pursuit of wisdom. He said the aim and purpose of his life was to contemplate the heavens, and when his private estates from neglect fell into ruin, he exclaimed: "To Philosophy I owe my worldly ruin, and my soul's prosperity." In addition to Pericles he had among his pupils Euripides and Socrates.

At the age of forty Anaxagoras left his native city and migrated to Athens, probably at the invitation of

Pericles, then at the height of his power, whose aim was said to be "to Ionize his fellow-countrymen, to impart to them something of the flexibility and openness of mind which characterized their kinsmen across the sea."¹ He enjoyed the intimate personal friendship of Pericles and taught the great Athenian statesman to put away all superstitious fears of celestial signs and impressions seen in the air. "For to those who are ignorant of the causes thereof, such sights are terrible, and to the godly fearful as if they were utterly undone; and all this is because they have no certain knowledge of reason which natural philosophy yieldeth and which, instead of fearful superstition, would bring a true religion accompanied with an assured hope of goodness." After spending some thirty years at Athens early in the Peloponnesian War, when Pericles was beginning to be unpopular, Anaxagoras was arraigned on a charge of impiety and condemned to death, but the sentence by the influence of Pericles was commuted to one of banishment.² Consequently he returned to his native home, saying, with a pardonable pride: "It is not I who have lost the Athenians, it is the Athenians who have lost me." Like his older Ionian fellow-countrymen, Anaxagoras was pre-occupied with the problem of matter. His doctrines, like those of Empedocles, aimed at reconciling the Eleatic theory of corporeal existence being unchangeable with the existence of a world which

¹ Burnet, *Early Greek Philosophy*, Sec. Ed., p. 294.

² Plutarch—Nicias.

everywhere presents the appearance of change, of things coming into being and passing away. "Nothing," said Anaxagoras, "can pass away, what men commonly call coming into being and passing away is in reality Mixture and Separation." The Greeks, he said, are in error when they speak about a beginning and a perishing of things, for no object begins neither does it perish, but it is composed by a mixture of existing objects and it is decomposed into them by separation; it would therefore be better to call the beginning a mixture and the perishing a separation. Nothing can proceed from nothing, the universe can only be an arrangement of existing things.

Unlike that of Parmenides and the Eleatic School, the theory of Anaxagoras was based upon an unconditional belief in the testimony of the Senses, and he was convinced that there was no change of qualities in objects and that objects really possess the qualities which the senses reveal to them; he was obliged to conclude that every difference of sensible qualities is fundamental, original and inalienable, and, consequently, there was not merely a bare plurality of objects, as opposed to the Eleatic One, but an inexhaustible crowd of fundamentally different entities existing from the beginning of things; there was not one Primary Matter, but countless Primary matters. Impossible as such a conclusion must be, it was perhaps hardly more unpractical than the views of the Eleatic philosophers, and at least by maintaining the

qualitative constancy of matter it paved the way for the atomic theory, of which we shall have to speak later.

Now just as Empedocles had to introduce Love and Strife in order to make a mixture in his four Elements, so Anaxagoras had to introduce νοῦς or Mind so as to produce Motion in the mixture, as Matter could never move itself. This term νοῦς or Mind has seemed to many to be a great philosophic advance in the direction of Theism, as suggesting a spiritual conception of The Great First Cause, and for this very reason Anaxagoras was praised by Plato and Aristotle. A closer analysis shows, however, that in reality the conception of νοῦς did not stand on any higher level than the Love and Strife of Empedocles, it was but a materialistic idea, though its substance was thinner than Fire or Air. True indeed it was the finest and purest of all things: it alone was free from admixture with any other thing, for had it been so mixed it would have participated with all other things, and such admixture would have prevented it from exercising the same force over any single object. But it is certainly not to be identified with the godhead, for we read of a "more or less of νοῦς," it is described as divisible and as inhabiting some things and not others, there are greater and smaller parts of it. Like Parmenides he made the thought of men depend upon the structure of their bodies; thus the νοῦς in living creatures was the same in all and from this it followed that the different

grades of intelligence which we observe in the animal and vegetable worlds depend entirely on the structure of the body. *Nóũς* was the same in all bodies, but it had more opportunities in one body than another. Thus Man was the wisest of animals, not because he had a better sort of *νόũς*, but because he had hands. This view is more in accordance with modern science, whereas Aristotle and Galen, true to their belief in teleological causes, thought that man had hands because he was the wisest of animals.¹

In his cosmological theory Anaxagoras maintained that the formation of the world started with a rotatory motion, which *νόũς* imparted to a portion of the mixed mass in which all things are together; the rapidity of this rotation gave rise to a separation of the dense and the rare, the cold and the hot, the dark and the light, the moist and the dry. By the violence of the cosmic revolution, the Sun, Moon and Stars had been torn away from the common centre of the earth, consequently he assumed that there were a series of projections or hurlings off, just as the theory of Laplace assumes it for the formation of the Solar System. He was the first to explain that the moon shone by a reflected light and that the moon is eclipsed by the earth screening the sun's light from it.

In Biology, Anaxagoras was the first to discover that fishes breathed through their gills. Plants he represented as living creatures and as breathing after

¹ Galen. *De Usu partium*.

a fashion. Between animals and plants he recognised no impassable gulf. Plants, he said, experienced both pleasure and pain, the former being the accompaniment of their growth and pain being associated with the loss of their leaves. Both plants and animals originated when the seeds of them which the air contained were brought down by the water.

As we have said before, Anaxagoras was charged with impiety in the early days of the Peloponnesian war, when the power of Pericles was on the wane. The particular form of his impiety appears to have been that, in accordance with his cosmological theories the great objects of nature, such as the heavenly bodies, no longer seemed to be divine. They were masses of matter obedient to the same natural laws as all other material things, whether great or small. Among his contemporaries it was a constant topic of adverse criticism that he looked upon the Sun, not as Helios, the God, but as nothing more or less than an ignited stone. Ideas such as these may well have affected the mind of Hippocrates and led him to say "that no one disease was more divine than another but that all were equally divine or equally human." In purely medical matters Anaxagoras was the first to mention the lateral ventricles of the Brain, he also thought the brain was the first organ formed in the embryo. He considered that the male offspring was nurtured on the right side of the womb and the female on the left, and this

idea appears in one of the aphorisms of Hippocrates.¹ The origins of acute diseases he ascribed to the movement of the Gall to the Lungs, Veins and Pleura, and similar ideas are to be found in the writings of Hippocrates.

The last of these early philosophers who preceded or were contemporary with Hippocrates is Democritus. In a sense he may be regarded as the father of science, for such modern philosophers as Francis Bacon and Galileo have had recourse to his atomic theory. No doubt many of the ideas connected with the atomic theory should be credited to Leucippus, who was the teacher of Democritus, but at this distance of time it is hard to separate what was due to master and what to pupil, and most of the writings about the Atomic theory have come down to us from Democritus, but to Leucippus we owe the first statement of the law of universal causation: "Nothing happens without a cause, but everything with a cause and by necessity."

Democritus was born about 460 B.C., at Abdera, in Thrace, a town which had in those days a reputation for the dulness of its inhabitants. He came of a noble family which was so wealthy that it was able to entertain Xerxes, who, by way of recompense, is said to have left behind some of the magi to instruct the youthful Democritus.² In the early part of his life he travelled a good deal and he says of himself:

¹ Hipp: Aph. V., 48.

² Diog: Lives of the Philosophers, IX., Ch. VII.

“ I am the most travelled of all my contemporaries; I have extended my field of enquiry wider than any one else : I have seen more countries and climes and have heard more speeches of learned men. No one has surpassed me in the composition of lines accompanied by demonstration, not even the Egyptian knotters of ropes or geometers.”¹

Democritus was known in antiquity as “ The Laughing Philosopher,” perhaps because he saw the disproportion between the business of man and his actual place and meaning in the universe, for to him man was but a grain of sand on the shore of the Infinite. Hippocrates appears to have had some direct personal relationship with Democritus, and in the *Corpus Hippocraticum* are to be found letters purporting to be written by Hippocrates to Democritus, and vice versa, in which the Philosopher shows interest in the treatment of Insanity by Hellebore. There is, doubtless, every reason to suppose that this correspondence is spurious; at the same time the Physician and the Philosopher were exact contemporaries, having been born in the same year, and there is a tradition that they died also in the same year. It is said that Hippocrates wrote his books in the Ionic dialect owing to his regard for Democritus, although Doric was his native idiom. We know indeed that Hippocrates spent some time at Abdera, which lies opposite the island of Thasos, the scene of so much of the Physician’s medical activities. There

¹ Gomperz, “ Greek Thinkers,” Vol. I., p. 318.

is a tradition that the citizens of Abdera considered their famous fellow-countryman Democritus to be mad, and so they sent for Hippocrates to advise about him. On the arrival of the great physician he found Democritus busied with anatomical studies. On enquiry as to the object of the same the Philosopher replied that he was in this way endeavouring to establish the folly of mankind. As a result of this conversation Hippocrates is said to have declared that Democritus was the wisest of mortals. Certainly if the anecdotes were true that the Philosopher attempted to put out his eyes with a burning glass in order that he might become more perfectly acquainted with his reason, his fellow citizens may well have had some grounds for feeling alarmed as to his sanity.

Now the Atomic Theory, as understood by Democritus, may be briefly stated thus: the world consists of Atoms and a Void. The Atoms were infinitely minute, invisible particles which moved up and down through space, which was made up of invisible vacant interstices. The Atom has magnitude and is therefore not mathematically indivisible, but it is indivisible physically, and like the One of Parmenides and the Eleatic School contains no empty space; however, as the atomists believed in the existence of a Void, which had been denied by the Eleatics, for them movement was possible. Each Atom has extension and they are all alike in substance.

Now all the differences which we meet with in things in the Phenomenal world must be accounted for either by the shape of the Atoms or their arrangement in Space. According to Democritus the Atoms had two properties: (1) Magnitude, (2) Form; it was only later that a third, namely Weight, was added by Epicurus. The curious paradox which occurs in the Atomic writers that "What is not is as real as what is" meant nothing more than that the Void was as real as the Atom. Though the Atomists have always been regarded as the great materialists of antiquity it is strange that they were the first to say that a thing might be real without being a body.¹ They were, however, in common with the rest of their predecessors and contemporaries, except Anaxagoras, materialists in as much as they looked in the material world alone for the causes or conditions of the states and qualities of consciousness. But the great advance of the Atomic theory was in conceiving matter as qualitatively constant. In opposition to Anaxagoras the Atomists maintained that there was no need to assume the existence of innumerable qualitative differences, not a single such difference need really be assumed, for differences in the size and shape of the primary atoms are in themselves completely adequate to explain the inexhaustible multitude of the differences of phenomena. While the Eleatic had regarded motion as merely belonging to the realm of appearance, with the Atomist it would

¹ Burnet's *Early Greek Philosophy*, 2nd Ed., p. 389.

seem that motion was part of the primordial endowment of matter, but it was to the School of Elea that the Atomist owed the conception that without a vacuum there was no motion. It was Parmenides who prepared the way for the distinction between essential and non-essential attributes, or between the primary and secondary qualities of objects. Our exact knowledge of nature rests entirely on the attempt to reduce qualities to quantities, or, to speak more precisely, to establish fixed relations between the two.¹ The ancient Atomic theory only went so far as to affirm the indefinite combination of the Atoms, the modern theory has of course established the law of definite proportions.

Democritus, like his predecessors Parmenides and Empedocles, drew no sharp line of distinction between the animate and inanimate creation, but distinguished the two merely by differences of degree, but the Soul he identified with the atoms of Fire. Again he differed from the Eleatics by assuming the existence of a multiplicity of elements. Thus the Democritean theory of the universe rendered the old geocentric point of view unnecessary: as was said by Metrodoros of Chios, "a single ear of corn on a wide spreading champaign would not be more wonderful than a single cosmos in the infinitude of Space." Yet in spite of such suggestive gropings after a true theory of the universe, mankind had to

¹ Gomperz, *Greek Thinkers*, Vol. I., p. 349.

wait till the advent of Copernicus before the Sun was recognized as the centre of the solar system.

Democritus regarded all the sensations of the special senses as objectively false, inasmuch as they have no real counterpart outside the sentient subject. "By use (νόμῳ)," he said, "there is sweet, by use there is bitter, by use there is warm, by use there is cold and by use there is colour. But in truth (ἐτεῆ) there are Atoms and the Void." Our sensations represent nothing external, though they are caused by something outside us, the true nature of which cannot be apprehended by the special senses. "By the senses," he said, "we in truth know nothing sure, but only something that changes according to the disposition of the body and of the things that enter it or resist it; we cannot know reality in this way: for Truth is in the depths."

The Soul, he thought, consisted of fine, smooth and round atoms which are also atoms of fire; these atoms are not confined to any particular parts of the body, but permeate it in every direction and in particular organs they exercise particular functions. The Brain is the seat of Thought, the Heart of Anger, and the Liver of Desire. When we draw in breath, we inhale Soul atoms from the air; in the expiration of breath we exhale such atoms into the air and life lasts as long as this goes on. According to the fundamental principles of Democritus Thought cannot be entirely independent of sensation or the νοῦς of the ψυχή. The moral character is considered

to be determined not by the acts as such but by the Will. In the pursuit of Happiness, like Pythagoras, he said that the great principle to guide us was that of "symmetry" or "harmony." Applying this test to Pleasures we may attain to the calm of body, which is health, and the calm of soul, which is "Cheerfulness." "He who chooses the good of the soul chooses the more divine than he who chooses the goods of this tabernacle (σκήνος), that is, the body."

Very characteristic of the Hellenic race is the saying of Democritus: "(πολυνοίην οὐ πολυμαθίην ἀσκεῖν χρῆ)"—"wealth of Thought not wealth of Learning was the thing to be coveted."

What amount of influence the Atomic theory may have had upon Hippocrates it is not easy to say. As we have remarked before Hippocrates does not seem to have had a specially speculative mind, at least he was not considering the ultimate constitution of matter or the nature of the laws of Thought, and, in general, dispensed with theory as far as possible. Still the essential sanity of Democritus' philosophic conceptions may well have had some influence upon him.

There are some references to Medicine to be found in the somewhat voluminous writings of Democritus and he actually wrote several medical treatises on (1) pestilential diseases, (2) on Diet, (3) Prognostics, (4) The causes of disease. He speaks of the "Phagedenic Ulcer," also of the pulsation of the arteries

which he calls the "beating of the veins." He had the strange view that the infant while in the uterus gets nourishment by sucking the walls of it, hence it knows how to suck the breast when it is born; this peculiar view appears also in the Hippocratic treatise "περὶ σαρκῶν." Epidemics he attributed to the destruction of heavenly bodies and the fall of the atoms that composed them, which were the enemies of human nature. In a letter to Hippocrates which has come down to us, though its authenticity is most doubtful, he writes: "All men ought, O Hippocrates, to know the art of Medicine, and particularly those who have received some education, for it is at once a fine thing and useful in life. I am of opinion that the knowledge of Philosophy is sister to that of Medicine and dwells beneath the same roof; indeed philosophy delivers the soul from passions and medicine removes diseases from the body. The mind grows as long as health is present, which a wise man should take care of, but when the body suffers the mind no longer troubles about the practice of virtue, for disease darkens the soul terribly by the sympathy it has with the intelligence."¹

In our brief account of the life of Hippocrates in our last lecture, reference was made to Gorgias of Leontini as having been one of the teachers of Hippocrates, though there is no actual reference to him by name in the Corpus Hippocraticum. But the name of Gorgias naturally calls up to our minds the

¹ Democritus to Hippocrates. Littré, Vol. IX., p. 395.

Sophists, who must have been at the height of their intellectual power and eminence during the lifetime of Hippocrates, who is hardly likely to have escaped entirely from their influence. This is perhaps not the time or the occasion to enter in any detail into the merits or demerits of the Sophists. The word Sophist and the adjective sophistical in most modern languages have come to bear a bad connotation; they suggest a sort of insincere juggling with words with very little care for Truth—"making the worse appear the better reason." This rather evil reputation of the Sophists has come down to them from the writings of Plato and Aristotle, who were their bitter opponents and were never tired of attacking and ridiculing them. But the dispassionate investigations of modern writers have led most people to think that the Sophists have been treated unfairly by Plato and Aristotle. Like any other body of men there were of course good and bad among them, what they really represented is what we should now call a professorial class, who in particular undertook to teach Rhetoric. Now that the use they made of Rhetoric was any more reprehensible than that made by the average common law barrister would be quite unfair to say, nor does it strike the modern mind as in any way immoral that they should have taken fees for their instruction, though Plato and Aristotle seemed to have regarded this taking of fees as specially iniquitous. At the same time when the object of a lecture or discourse is not so much to impart specific knowledge as to incul-

cate a particular mental temper, then perhaps the taking of fees may seem to strike a jarring note and be open to some objections on æsthetic grounds.¹

The Sophists came upon the field at a time when, owing to the speculations of the Eleatics and Atomists, it would have seemed that knowledge of Reality was impossible. Socrates set to work to build up the foundations of knowledge so as to render knowledge metaphysically possible, and in this he was followed by Plato and Aristotle, but the Sophists, believing knowledge to be impossible, considered how they could best deal with the phenomenal world, how in fact the practical life should be led. They were indeed masters of the art of stimulating thought, but, like the mediæval school-men, they often imagined they could dispense with empirical knowledge and regarded argument and rhetoric as though they were science.² Deceiving oneself with words which in the time of the Sophists was most obvious in law-courts and Public Assembly may easily invade Medicine, where such expressions as "autointoxication," "vital energy," or "perverted metabolism" readily appear as counters when there is no coin.

In spite of the general abuse showered upon the Sophists in antiquity, some at least, and those of whom we know most, were men of admirable character, though their philosophic speculations may not have soared to such lofty heights as those of their

¹ Urwick: *The Message of Plato*.

² Neuburger. *History of Medicine*, Vol. I., p. 127.

traducers. Among the most famous were Protagoras and Gorgias, so we will close this lecture by a few words about them.

Protagoras, like Democritus, was a native of Abdera, and ten years senior to Hippocrates, having been born in 470 B.C. Though several works were attributed to him in antiquity, none have come down to us. But his famous doctrine that "Man is the measure of all things" was widely known throughout Greece in the middle of the 5th century. By this saying is meant: "Things are to me as they appear to me, and to you as they appear to you." Thus all beliefs may be equally true, one belief may nevertheless be better than another, and he seems to have regarded as "better" the beliefs which were most in accordance with those of a man in a sound condition of body and mind. The wise man, he said, is the physician of the soul. He cannot indeed induce true thoughts into the mind, since all thoughts are equally true, but he can induce healthier and more profitable thoughts.¹ In the same way he can heal society, since by the power of oratory he can introduce good and useful sentiments in the place of those which are base and hurtful. Protagoras, according to Plato, was a strong believer in law as against all attempts to return to nature. He was also a strong believer in organized society, and held that it was institutions and conventions which raised men above the brutes. Far from being a revolutionary he was

¹ Plato. Theætetus, 167. A.

the champion of traditional morality, not from old-fashioned prejudice but from a firm belief in the value of social conventions. In a deeper sense he may be said to have denied the reality of Being. "In Reality," he said, "nothing exists, everything is Becoming as Heracleitus and others have taught. Motion is the cause of growth while Rest is the cause of decay and ceasing to be."

We will conclude by saying a few words about Gorgias, the other famous Sophist of the time, who has been one of the teachers of Hippocrates. He was born at Leontini in Sicily, nearly a generation younger than Protagoras, and seems to have been a disciple of Empedocles, particularly in Physics and Medicine. He was a teacher of Rhetoric rather than of Politics. In 427, when already advanced in years, he came to Athens as an ambassador from his native city and into Athens he introduced the methods of persuasion by means of artistic prose. Like Protagoras he disbelieved in the possibility of science, being driven to this position by the Eleatic doctrine. By Being the Eleatics did not mean phenomenal but ultra-phenomenal existence. They looked upon the phenomena of sense as always coming and going. They searched for what they supposed to be the really existing Substance or the "Noumenon" lying under the phenomena, which they regarded as the only appropriate object of knowledge. It is this—the Noumenon—which Gorgias said could not be known.¹

¹ Grote, *Hist. of Greece*, VIII., p. 173.

He wrote a book entitled "On Nature and the non-existent" (περὶ φύσεως ἢ τοῦ μὴ ὄντος). He taught that "nothing was true" and tried to prove (1) that there is nothing, (2) that even if there is anything we cannot know it, (3) if we could know it we could not communicate it to anyone else, for we can never be certain of the complete identity of our elementary sensations with those of other people. In the ethical sphere the counterpart of this nihilism would be that there is no natural distinction between right and wrong; but Gorgias does not himself seem to draw this conclusion. Plato, however, maintained, and to some extent it is true, that by insisting on the opposition between Law and Nature the Sophists tended to obliterate the distinction between Right and Wrong. Though we cannot attribute immoral intentions of any kind to the great Sophists, Plato certainly thought that the inevitable consequences of their teaching was bad. The mind of Hippocrates was not of the type to be greatly affected by the reasonings of the Sophists, at the same time it has seemed well to dwell for a moment on so important a factor in the intellectual life of Greece in the 5th century.

FITZPATRICK LECTURES III & IV
THE POST-HIPPOCRATIC SCHOOLS OF
MEDICINE

LECTURE III

THE POST-HIPPOCRATIC SCHOOLS OF MEDICINE

IN our previous lectures we endeavoured to show how Hippocrates had been influenced by the great Ionian philosophers who had preceded or been contemporary with him and by the scientific and general intellectual atmosphere in which his writings had been composed.

Just as after the death of Socrates the essential unity of his teaching broke up into a variety of Schools, such as the Cynics, Cyrenaics, Megarians, and, in particular, the followers of Plato, so after the death of Hippocrates Medicine became split up into a number of sects, some further and some less far removed from the central doctrine of their master; each at its best emphasizing some important aspect of medical truth, but each in turn, as is the habit of all sectarianism, running into strange and impossible extremes, while remaining incapable of grasping the Hippocratic system as a whole.

Now this second series of lectures will differ from those of last year in that we shall not be dealing with one great physician, like Hippocrates, whose name is

familiar to every practitioner of medicine throughout the world, nor with the lives of well-known philosophers such as Pythagoras, Heracleitus and Empedocles, but rather with physicians whose names are hardly heard of outside the limited fraternity of those specially interested in the history of medicine and with schools of philosophy rather than with the personalities and teaching of individually renowned philosophers. Last year, we were, if I may so express it, on the crest of the intellectual wave of the ancient world. This time we shall be in the trough of that wave which is naturally less interesting.

The Post-Hippocratic Schools of Medicine, which were four in number, namely (1) The Dogmatists, (2) The Empirics, (3) The Methodists, (4) The Pneumatists, occupy perhaps a somewhat unimportant sphere in the history of medicine, but the great philosophic schools of the Stoics, Epicureans, Sceptics, and Eclectics which influenced them, and of which, in a sense, they were the practical outcome, are famous through all time and some attempt will be made to describe them when trying to explain their points of contact with medicine.

The Dogmatists. We will begin by studying the school of the Dogmatists, which in its prime synchronized with the decline of Hellenic freedom and with the rise of the Macedonian hegemony. This School received its name from Galen, and, though not very happily chosen, it must be retained for convenience. If we were to call them "Theorists" we

should come nearer to the essential idea which they represented in the ancient world. To the modern mind Dogmatism is suggestive of a certain degree of intellectual rigidity and aridity which were certainly not characteristics of this ancient medical school. But they suffered from what Bacon called that first distemper of learning when men study words and not matter.

The most important member of this School, though not the actual founder of it, was Diocles of Carystus, who flourished soon after the death of Hippocrates. By Galen he was thought to bear a close resemblance to Hippocrates not only on account of the fundamental principles which he laid down, but also on account of his noble character. Galen speaks of him in terms of the highest praise, saying that he had never striven for fame or gain, but that the love of mankind had made him select his profession.

Diocles was born at Carystus, in Euboea (400 B.C.); he was the son of Archidamus, and in his book entitled "Archidamus" Diocles has erected a pious memorial to his father. The greater part of his life was passed at Athens, and with pride he was termed by his fellow citizens "a second Hippocrates."

He was the first physician to write in Attic Greek, and his writings covered the whole field of medicine, namely, Physiology, Anatomy, Dietetics, Pharmacy, Pathology, Therapeutics and Prognosis. He was the first to isolate Pleurisy from Pneumonia, declaring that the seat of Pneumonia was in the vessels of the

lungs; fever he described as the after symptom (ἐπιγέννημα) of other disease processes. Diocles was also busied with the vascular system; he regarded the heart as the source of the blood and distinguished two main branches issuing from the heart (1) The Aorta (παχεῖα ἀρτηρία) extending to the kidneys and bladder, and (2) The Vena Cava (κοίλη φλέψ). As regards the nerves, however, he was as much in the dark as his predecessors had been.

From the book which he wrote upon Diet it would appear that Diocles knew something of the Eastern shores of the Ægean, as he praises the pumpkins of Magnesia, the cucumbers of Antioch, the lettuces of Smyrna and Galatia, and the rue of Myron in Cilicia. At Gaza he says that he encountered a male abortion thirty days old, with complete formation of the individual limbs, the heart being the size of a peppercorn. Speaking generally, in his dietetic writings Diocles adopted the Hippocratic point of view and laid down most minute directions for every hour of the day, for the morning walk, for sleeping, for working, for cleaning the teeth, and so forth. He had the same idea as Hippocrates about the critical days, but thought the 21st was the most important of all because according to the Pythagorean system, with which he was deeply imbued, great power was attributed to the numbers 4 and 7. But the bond which specially united Diocles with Hippocrates was his recognition of the fundamental teaching of the great physician that it is impossible to understand the

nature of the body without knowledge of the Macrocosm, which is so well exemplified in the Hippocratic Treatise on Airs, Waters, and Places. In the writings of Diocles, as in those of Hippocrates, we find an effort to bestow a continuous consideration on the climate, seasons, surroundings, and also the life habits of the sick. Like Plato in the Charmides, Diocles subscribed to the doctrine that a local affection cannot be treated without reference to the body as a whole and the general condition of the patient. His remedies were derived entirely from the vegetable kingdom and he wrote a treatise on the use of plants in medicine.

Another distinguished member of the School of Dogmatists some sixty years later was Praxagoras of Cos (340-320). He was the son of Nicharchus and the teacher of Herophilus, also he was the father of the celebrated poet Theocritus, and the pupil of Diocles. It appears that Praxagoras was the first to discriminate between the arteries and the veins, and to use them for his teaching on the pulse, to which he attached the greatest importance, saying that the pulse in diseased conditions indicates the changes of the vital force. The beating of the arteries he did not regard as being transmitted to them from the contraction of the heart, but regarded it as a peculiar property belonging to them, their contents being the air-like life-spirits only, as Praxagoras thought the arteries only contained air, it is naturally rather puzzling to understand where the blood comes from

which spurts out of an artery when wounded. The answer made to this question by Praxagoras was: When the arteries are wounded they are in a state contrary to nature, in which they attract blood from all parts of the body and so make it flow outside.¹ Like Aristotle and other ancient authorities, he thought that ligaments took their origin from the heart, or, at least, that the strongest were united in that organ, also that the arteries ended by becoming ligaments and gathering more force as their diameter diminished in size. The left ventricle he imagined to be the chamber containing air (or the *pneuma*), while the right ventricle was the receptacle of the blood. Since the left side of the heart is found empty at death, it was not unnatural to think that it contained air (*pneuma*). Praxagoras was the first to give the Vena Cava its name of Φλέψ κοίλη the word Φλέψ which we now translate as vein meaning at that time what we should now call "blood vessel." Strangely enough he looked upon it as the seat of fever, probably because he had noticed that Rigors begin along the Vertebral column, where he placed the seat of the Vena Cava. Animal heat he regarded not as something "inborn" (ἐμφυτον) but as something "newly acquired" (ἐπίκτητον). All mental diseases, he thought, originated in the heart; according to him epilepsy was caused by the destruction of the arteries through excess of phlegm. The nerves he seemed to have looked upon as the organs of sensation, but

¹ Kurt Sprengel: *Hist. de la Med.*, Vol. I., p. 424.

did not distinguish them entirely from the vessels and tendons; their origin he believed to be in the heart; doubtless, because Plato had made the heart the seat of sensation; unfortunately he confused himself by taking the terminal branches of the arteries for nerves. The Brain, however, he regarded as a simple excrescence of the spinal cord, and in no way the common centre of sensation, but he distinguished between the motor (προαιρετικά) and the sensory (αἰσθητικά) nerves.

He treated fever when it occurred in winter and in old or weak subjects not with venesection but by abstinence from food. In the case of volvulus he seems to have advised operative procedure.

The school of the Dogmatists had a peculiar method of treating fever; first they caused a patient suffering from fever to be covered with a large number of clothes in order to produce heat and thirst; as the fever remitted the patient was given cold water to drink with a view to producing a sweat. If this did not come about, the patient had to drink more salt water, and this caused vomiting. When by one of these methods the fever was brought to an end, the patient was given roast pork and allowed to drink as much wine as he liked.¹

But the most distinguishing characteristic of the Dogmatists was that they had taken as their guiding motto the saying of Hippocrates that "the physician

¹ Hæser *Gesch. der Medizin*, Vol. I., p. 226.

who is also a philosopher is godlike,"¹ and with commendable zeal they proceeded to earn this title by a careful study of the *Timæus*. This famous dialogue of Plato became their text book of Philosophy, and, it must be admitted, with unfortunate results for medicine. Though the *Timæus* has been described by the late Professor Jowett as obscure and repulsive to the modern mind, it had the greatest influence over the ancient and mediæval world, and as so much of Dogmatic theory drew inspiration from this source we must, in spite of its obscurity, say a few words about it. The Dialogue is obscure because an attempt in it is made to conceive the whole of nature without any adequate knowledge of the parts and also because there is a greater perception of similarities which lie at the surface than of differences which are hidden from view. The conception of the world as a whole, whether as a person or an animal, has been the source of hasty generalizations, yet the general grasp of nature led to a spirit of comprehensiveness in early philosophy which has not increased but rather diminished as the fields of knowledge have become more divided.² In the infancy of speculation to conceive of the world as a whole is by no means an easy thing to do.

The *Timæus* is the only dialogue in which Plato gives a concise explanation of his notion of the physi-

¹ Hipp: *περὶ εὐσχημοσύνης* (probably by Philosophy is meant here Ethics not Metaphysics).

² Jowett's Introduction to the *Timæus*.

cal world, and puts forward some definite anatomical and physiological ideas; but such subjects, we must realize, were certainly not of primary interest to Plato, who was far more concerned with metaphysics and the nature of ultimate Being, and so the dialogue is put into the mouth of a Pythagorean, and not of Socrates, who also stood aloof from physical speculation, which in the *Phædo* he said he had definitely renounced. Plato himself did not attribute any importance to his own guesses at science. He is not absorbed by them as he is by "The Idea of the Good," for he regarded speculation on Physics as a rational pastime only. He would have thought it an impiety to rank physics first in the order of knowledge, as that would mean placing the body before the soul. In the dialogue of the *Timæus* there is much derived from Plato's theory of the Universe and applied to man, as there is much in his theory of the Universe which is suggested by man. The Microcosm of the human body is the lesser image of the Macrocosm, the animal, he imagined, acted as a sort of world to the particles of blood which circulate in it. Like the world which is conceived of as a whole, so also is the human body and the different substances of which it appears to be composed—the blood, flesh, sinews and bone—like the elements out of which they are formed, are supposed to pass into one another in regular order, while the infinite complexity of the human frame remains unobserved. Diseases arise from an opposite process, when the

natural proportions of the four elements are disturbed and the secondary substances which are formed out of them, namely, the blood, flesh, sinews and bone are generated in an inverse order.

Heat and fire he found circulating with blood in every part of the human frame, and he assumed that an inner network of fire having openings and an exterior envelopment of air commencing at the passages of the throat encased a great part of the human frame. The entire network had two openings, one leading to the stomach, the other to the lungs, the latter is forked and divided at the upper end into the passages which lead to the nostrils and to the mouth. Plato, of course, knew nothing of the distinction between arteries and veins, to the veins he attributed the powers which belong to the nerves of sensation and motion and the term "arteries" he applied to the bronchi and imagined that the lung was empty and bloodless. He had no idea of the phenomena of respiration, but considered it to be due to a law of equalisation in nature, the air which was breathed out displacing other air which finds a way through the pores. Of the processes of digestion he displays a complete ignorance. The numerous windings of the intestine he explained as a precaution against gluttony, for by retarding the passage of digestive residues they prevent too speedy replenishment. As in the Dialogue of the Republic so in the *Timæus* Plato is the enemy of the purgative treatment of disease, which except in extreme cases no man of

sense should adopt, for, he says, "every disease is akin to the nature of the living being whose complex frame has an appointed term of life, and if any one, regardless of the intentions of Nature, would get the better of their diseases by medicine, he only increases and multiplies them. Whereas we ought always to manage them by regimen, as far as a man can spare the time, and not provoke a disagreeable enemy by medical treatment."¹ Like Hippocrates he believed in the "*Vis medicatrix naturæ*," and seems to have thought that physicians were more or less useless; we know that they as well as lawyers were banished from his ideal Republic. With regard to the special senses Plato's ideas were very different from ours. For him the senses are not instruments but rather passages through which external objects strike upon the mind. Thus the eye is the aperture through which the stream of vision passes, the ear is the aperture through which pass the vibrations of sound, but he was hardly aware of the complex structure of the eye and ear being in any way the cause of sight and hearing. These were the kind of doctrines which had much influence with the Dogmatists.

Now in trying to form an estimate of the Science of the ancient world it is difficult to realize how great a thing it was to have framed a conception, however imperfect it might be, either of the human body as a whole or of the world as a whole. It is very doubt-

¹ Plato. *Timæus*, 89. B.

ful whether the Egyptians or Babylonians ever formed such conceptions. General notions are notions which are necessary for the discovery of particular facts, the metaphysical for the physical. Before men can observe the world with any profit they must be able to conceive the world, the string is wanted no less than the individual pearls.

The ancients realized that mathematical laws pervaded the world and even qualitative differences were supposed to have their origin in number. Plato may be said to have mathematized nature. In the *Timæus* he proceeds on the assumption of mathematical regularities and corresponding rhythm even in spheres where modern science has seldom sought and never found them. Still it was better to look for law where it did not exist than not to look for it at all. But the ancients did not make experiments, indeed Plato seems to have thought that there would be an impiety in making the attempt: "He who tried to experiment in colours," he said, "would forget the difference of the human and divine nature." There is a passage in the *Laws* of Plato in which he described two kinds of doctors, and in the superior kind who are the doctors of freemen we can easily recognize the prototype of the Dogmatist physician, the passage is as follows: "And did you ever observe that there are two classes of patients in States, slaves and freemen; and the slave doctors run about and come to slaves and wait for them in the dispensaries—practitioners

of this sort never talk to their patients individually, or let them talk about their own complaint; the doctor prescribes what he thinks good out of the abundance of his experience, as if he had no manner of doubt, and when he has given his orders, like a tyrant he rushes off with equal assurance to some other servant who is ill, and so he relieves the master of the house of the care of his invalid slaves. But the other doctor who is a freeman attends and practises upon freemen and he carries his enquiries far back and goes into the nature of the disorder (this, of course, is very like the method of the Dogmatist); he enters into discourse with the patient and his friends, and is at once getting information from the sick man and also instructing him as far as he is able, and he will not prescribe for him until he has first convinced him; at last, when he has brought the patient more and more under his persuasive influence and set him on the road to health, he attempts to effect a cure. Now which is the better way of proceeding in a physician and in a trainer? Is he the better who accomplishes his ends in a double way, or he who works in one way and that the ruder and inferior? ”¹

A few practical medical or semi-hygienic suggestions are worth mentioning while we are considering Plato. Thus: “Is not rapid growth without proper and abundant exercise the source of endless evils in the body?”

Cleinius: “Yes.”

¹ Plato. Laws, Bk. 4, 720. B.

Athenian Stranger : “ And the body should have the most exercise when growing most ? ”

Cleinias : “ But, Stranger, are we to impose this great amount of exercise on newly-born infants ? ”

Athenian Stranger : “ Nay, rather upon the bodies of infants still unborn.”

Cleinias : “ What do you mean, my good sir ? In the process of gestation.”

Athenian Stranger : “ Exactly ; I am not at all surprised that you have never heard of this peculiar gymnastic applied to such little creatures, which, although strange, I will endeavour to explain to you.”

Cleinias : “ By all means.”

Athenian : “ All bodies are benefited by shakings and movements, when they are moved without weariness, whether the motion proceeds from themselves or from a swing or at sea or on horseback, or is caused by other bodies in whatever way moving, and thus gaining the mastery over food and drink, and being able to impart beauty and health and strength. Let us assume then, as a first principle in relation both to the soul and body of the young creatures that nursing and moving about by day and by night is good for them all, and that the younger they are the more they need it ; infants should live, if that were possible, as if they were always rocking at sea. This is the lesson which nurses have learned from experience and which we may also learn from the use of the remedy of

motion in the rites of the Corybantes; for when the mothers want their restless children to go to sleep they do not employ rest, but, on the contrary, motion, rocking them in their arms; nor do they give them silence, but they sing to them and lap them in sweet strains."¹

Much sleep is not required by nature, either for our souls or bodies, or for the actions in which they are concerned. For no one who is asleep is good for anything any more than if he were dead; but he of us who has most regard for life and reason keeps awake as long as he can, reserving only so much time for sleep as is expedient for health, and much sleep is not required if the habit of not sleeping be once formed.²

In the following passage from the *Laws* of Plato we have a good unconscious description of what would apply to the empirical school of physicians. Of course they had not come into existence in the time of Plato, but we shall have to make mention of them presently. In speaking of the inferior kind of doctor who attends slaves, Plato says: "Of this you may be very sure, that if one of these empirical physicians, who practise medicine without science, were to come upon the gentleman physician, talking to his gentle patient and using the language almost of philosophy, beginning at the beginning of the disease and discoursing about the whole nature of

¹ Plato. *The Laws*. Bk. VII., 788. D.

² *Ibid.* Bk. VII., 808. B.

the body he would burst into a hearty laugh—he would say what most of those who are called doctors have at their tongue's end: 'Foolish fellow.' He would say: 'You are not healing the sick man, but you are educating him, and he does not want to be a doctor but to get well.'"¹

Here is another passage suggestive of the philosophic attitude to be adopted by the physician. "For every physician and every skilled artist does all things for the sake of the whole, directing his efforts towards the common good, executing the part for the sake of the whole and not the whole for the sake of the part, and you are annoyed because you do not see how that which is best for you is, as far as the laws of creation admit, best also for the universe."²

There is a fine passage in which Plato points out the impossibility of any art imposing upon itself universal rules. Thus:

Let us put to ourselves the case of a physician who is about to go into a far country, and is expecting to be away a long time from his patients; he leaves written instructions for the patients or pupils under the idea that they will not be remembered unless they are written down. But what would you say, if he came back sooner than he intended, and owing to an unexpected change of the winds or other celestial influences, some other remedies happened to be better for them, would he not venture to suggest these other

¹ Plato. *The Laws*. Bk. IX., 857. C.

² *Ibid.* Bk. X., 903. C.

remedies, although differing from his former prescription? Would he persist in observing the original law, neither himself giving any new commandments, nor the patient daring to do otherwise than was prescribed, under the idea that this course only was healthy and medicinal, all others noxious and heterodox? Viewed in the light of science and true art would not all such regulations be utterly ridiculous?¹

So great was the influence of Plato upon the school of the Dogmatists that Dexippos of Cos, one of the immediate followers of Hippocrates, was induced to defend the absurd notion that liquids, or at least the more subtle parts of them, passed into the lungs, because this belief had been enunciated by Plato in the following passage of the *Timæus*: "But as the gods foreknew that the palpitation of the heart in the expectation of danger and the swelling and excitement of passion was caused by fire, they formed and planted as a supporter to the heart, the lung, which was in the first place soft and bloodless and also had within it hollows like the pores of a sponge, in order that receiving the breath and the drink and cooling them it might give the power of respiration and alleviate the heat. For which reason they cut the arteries or air vessels as passages to the lung and placed the lung about the heart as a soft spring, that when passion was rife within, the heart, beating against the yielding body, might be refreshed and suffer less and might thus be more ready to enlist

¹ Plato. *Politicus*, 295. B.

passion on the side of reason.”¹ More obscure members of the school indulged in astonishing observations, thus Plutarch tells us how Menisthenes maintained that patients who had appetite for onions at the beginning of a Pleurisy regained their health, while those who had a special desire for figs infallibly perished.²

We have seen that Plato had a good many things to say about medicine, but he was not especially interested in it. The extraordinary interest of the modern world in medicine and disease is wholly alien to the Platonic conception of them. To Plato, as to the ancient world generally, disease was a tiresome and meaningless exception to the ordered regularity of a harmonious life, it was a kind of square root which would not come out, belonging to the realm of τὸ ἄπειρον (the infinite), which no philosophic mind would waste time in studying. The ordinary citizen ought to be healthy, sane, and strong, and the man who was properly occupied had “no leisure to be ill.” Focussed upon the State as the mind of the antique world undoubtedly was, the needs of the individual were less minutely considered than is the case with us, and not only sickness but also old age was apt to come off second best. With the increase of the apparatus of living and the general complexity of modern life, every aspect of existence is subjected to an almost morbidly minute analysis. Among the

¹ Plato *Timæus*, 70. C.

² Kurt Sprengel. *Hist. de la Méd.*, Vol. I., p. 375.

ancients life was infinitely more simple than with us, but it must be confessed that to some extent the simplicity was purchased by ignoring some awkward facts, such as disease and the discomforts of old age. The fact is that with regard to the solution of many difficult social problems the ancients had a genius for cutting knots which the modern world prefers to untie.

It is hardly surprising that the school of Dogmatists with their philosophical disquisitions and hair-splitting dialectics should have aroused the natural antagonism of the so-called practical man, who prides himself on his contempt for all theories. It was Disraeli who defined the practical man as one who practises the blunders of his ancestors, but, at all events, he is always with us in every department of life as much to-day as at the epoch we are considering more than two thousand years ago. Accordingly in direct opposition to the Dogmatists arose the school of the Empirics, and certainly as against the Dogmatists these reformers had a very definite case; but unfortunately, as happens with all reactions, they became characterized by the most extreme and even absurd views.

Now the word "empirical" has evil associations in Medicine, but this school was not empirical in the ordinary sense in which every ignorant and uneducated person is an empiric. In the case of the ordinary man Empiricism arises from ignorance of the art of reasoning, whereas some physicians of the

Empirical school reasoned in the most subtle fashion to prove the futility of all reasoning. As it has been expressed by a modern writer in a somewhat different connection, "Abstract theory was to be valued only so far as it might serve to clear the tablet of the mind from suppositions only half realizable or wholly visionary and leave it in flawless evenness to the impressions of a direct and concrete experience."¹ Disgusted by the continual stream of theories flowing out from the Dogmatic School, which had been taught by the Sophists how to defend every opinion, the Empirics confined themselves exclusively to clinical observation and to the task of curing the patient.

The founders of this school were Philinos of Cos and Serapion of Alexandria (fl. 280 B.C.). They were the pupils of Herophilos and Erasistratus of Alexandria, whose names are of course well known to all students of anatomy, and they took Aristotle for their intellectual leader. As opposed to the Dogmatists they declared the attempt to search after the ultimate causes of phenomena entirely vain; at the same time they were active in endeavouring to elicit the immediate causes.

Serapion, in addition to writing with great vehemence against Hippocrates, was almost exclusively occupied in researches on remedies and entirely neglected diet; the remedies he made use of for Epilepsy have a strong savour of superstition

¹ W. Pater. *Marius the Epicurean*, Chap. VIII.

about them, for apart from Castoreum, he advised the brain of the camel, the heart of the hare, rennet from a seal, and the blood of the tortoise.

A special stimulus was given to this school by the immense commerce of the Ptolemies, which had brought to light a large number of new medicines, with which it was possible to experiment in a purely empirical fashion. Many physicians occupied themselves entirely in experimenting with new remedies without paying any attention to the theories of the Dogmatists. They are only known to us from their preparations of certain composite remedies.¹ In those days it was the fashion for kings and princes to take an interest in medicine, as was the case with Attalus, King of Pergamos, and Nicomedes, King of Bithynia. Attalus cultivated various poisonous plants in his garden such as aconite, hellebore, hemlock and henbane, and tried the effect of antidotes upon them; several of these antidotes became known by his name. More celebrated still was Mithridates, King of Pontus, who took a poison and an antidote every day to render himself immune to poisons. He also tried his poisons and antidotes upon criminals; he is said to have been healed of a wound by a remedy in the composition of which was the poison of a serpent. Pompey the Great found among the private papers of Mithridates, after his death, evidence of his having poisoned two individuals.

The main intellectual support of the School of

¹ Kurt Sprengel. *Hist. de la Méd.*, Vol. I., p. 478.

Empirics, however, was derived from the influence of Pyrrho (fl. 340) the founder of the sceptical school of Philosophy, which was contemporary with the great philosophic schools of the Stoics and Epicureans. Pyrrho came from Elis and first followed the profession of a painter, but is said to have been attracted to philosophy by studying the writings of Democritus. He accompanied Alexander the Great to India, and, according to a tradition, while there came in contact with the Sages of the East, from whom he seems to have carried away that strange impassiveness and detachment which he strove in after life to reproduce. He lived poor but universally honoured, and died about 270 B.C. when nearly 90 years of age.¹ As Pyrrho left no writings we only know what he taught from his disciples, of whom Timon of Phlius was the most notable. He compared his master to the imperturbable Sun God who hangs aloft above the earth.

The philosophy of Pyrrho denied everything, because according to it there are equal reasons for the affirmative and negative in all propositions (*ἰσοσθένεια τῶν λόγων*). We ought not, therefore, to maintain anything, not even our own experience. To Pyrrho it seemed impossible to know the true nature of things for our perception only shows us things as they appear, not as they really are in themselves. The only correct intellectual attitude therefore which a man could adopt was one of "suspended judgment"

¹ Stoics and Sceptics. E. Bevan, p. 123.

(ἐποχή). He will not believe that anything in itself is good or bad, but such conceptions are rather to be referred to law and custom, once grasp the idea that the desire to know is essentially futile, that you can let the mind play and hold it back all the time from fixed belief, and there was no reason why you should not be perfectly happy and contented in nescience. Though Pyrrho, in philosophizing, refrained from discussion, in action he by no means abandoned himself to the sport of circumstances. It was indeed a wonderful deliverance to realize that you need not mind not knowing.¹ This philosophy of doubt limited all investigation to the narrow sphere of sense knowledge. There was nothing absolutely new in this; the Eleatic School of Philosophy in particular had given rise to Sceptics, and Parmenides as well as other philosophers had opposed the knowledge we get from our senses to that which we obtain by the power of the mind. In the quite early days of Greek Philosophy Xenophanes had said "the certain truth there is no man who knows, nor ever shall be about the gods and all things whereof I speak, yea, even if a man should chance to say something utterly right, still he himself knows it not: there is nothing anywhere but guessing."² The endless controversies of philosophers and their often mutually antagonistic systems must long ago have produced a certain discontent with philosophy in the minds of ordinary

¹ Stoics and Sceptics. E. Bevan, p. 124.

² Ritter and Preller, 104.

men, but Pyrrho was the first to systematize the scepticism so to speak which ministered to the intellectual requirements of the ordinary man.

Put shortly the view of the sceptics was this: In the case of any given phenomenon we affirm it as an appearance to ourselves, we do not make positive statements about the nature of external objects in themselves. "That honey is sweet I refuse to assert; that it appears sweet, I fully grant," says Timon, the disciple of Pyrrho. Man, as distinguished from other animals, has in the sphere of phenomena a faculty of following the process of things and retaining it. In virtue of this he remembers what phenomena he has observed accompanying each other, what preceding and what coming after, so that when the first members of the sequence are presented to him the rest are revived. Thus the Sceptic did not refrain from inferring the existence of fire when he saw smoke, or the existence of a wound when he saw a scar,¹ but of course he had to see the smoke and the scar. Now this scepticism differed from modern agnosticism, as, according to it, you could only infer what you did not see from what you did see, consequently the theory of the existence of atoms and pores in the body was repudiated, because atoms and pores were things which could never come within the range of sense perception. Hence such an induction as Kepler's of the movement of the planets in an ellipse would have been impossible for this School,

¹ Bevan. *Stoics and Sceptics*, p. 126.

in fact the immense part which working hypotheses have played in modern science was far from the thought of the ancient sceptic.

The early followers of Pyrrho consisted almost entirely of physicians who gradually formed the Empirical School of Medicine. They rejected all judgments which are not immediately derived from sensations, and, like Pyrrho, they confessed that they were completely ignorant of the essence of things, affirming further that the essence was impenetrable because it escapes the recognition of the senses. On the other hand, the physician of the Dogmatic School of Medicine would not hesitate to offer an explanation of this essence, thus he would tell you for instance that pain came from a disjunction of the elements.

The Empirical School paid particular attention to the totality of symptoms without occupying themselves with the nature of disease or its causes; for, they said, medicine is concerned with the cure of disease not with the cause; they did not want to know how we digest but what is digestible. In subjecting the art of observation to fixed and invariable rules they rendered Science a more important service than most of the speculations of the Dogmatists. But some Empirics went so far as to write treatises to maintain that Anatomy was unnecessary; they contended that the parts in the dead body behave quite differently from those in the living and that even in vivisection of living men which, we are glad to know, they regarded with the utmost horror, pain and loss

of blood caused the most profound alterations. It is certainly somewhat difficult for us to understand how death could at once cause any profound alteration in the structure and arrangement of the bones for instance.

They defined disease as "a union of symptoms which is observed always in the same way in the human body," but the numbers of these symptoms is a very important matter; a single symptom can but seldom enable one to recognise a disease and decide upon the therapeutic measures to which one will have recourse. Thus, for instance, the pain is much the same in inflammation and scirrhus, but the latter affection does not present the same symptoms which are noticed in inflammation. The physician should also pay attention to the time and the order in which the symptoms manifest themselves. Thus the treatment is different according as fever supervenes after convulsions or convulsions appear in the course of the fever. No attempt, however, was made to comprehend or search into the hidden causes of these symptoms, but the whole art and science of Medicine became for them reduced to a system of therapeutics and of therapeutics only.

In endeavouring to find out what particular line of treatment would get rid of a particular set of symptoms they employed three methods, which became known as the "Tripod of the Empirics."

1. A man's own chance observations.
2. Learning from his contemporaries' and predecessors' history—which is nothing more than the remembrance of a number of observations made in the same manner by one's predecessors, just as from the description of authors one can acquire a knowledge of a country as exact as if one had traversed it oneself; thus he who knows how to take advantage of the writings and observations of others learns more in the course of his life than if he had observed the diseases themselves for centuries.
3. In the case of new and strange diseases drawing conclusions from those most similar to them—Analogy. This had been made use of by the Dogmatists, but in their case analogy was based upon the identity of the causes and essence of the diseases which can only be inferred by reasoning, whereas in the analogy of the Empirics, they confine themselves to seizing upon the totality of the symptoms which are presented to our senses.

Later on a fourth method was added called "Epilogism." This was the process of inferring preceding events from the present symptoms. By this method they hoped to overthrow the sophistry of the Dogmatists; thus, when a madman presents himself for treatment, and on examining the skull scars and

indentations are found, one may conclude that the wound of the head is the hidden cause of the madness; thus, too, the Empiric might conclude from the extreme inflammation of a wound that it had been poisoned and treat it accordingly without falling into the dogmatic heresy of looking for hidden causes.

The Empiricists resembled Hippocrates in paying great attention to clinical observation, and, like him, they were guided in treatment at the bedside almost exclusively by experience. Like him, too, the Empirics attached great importance to climate, and they went so far as to assert that remedies which were necessary at Rome would have no effect in Gaul, and that a line of treatment which might be useful in that country would be quite inapplicable in Egypt. Consequently they did not in Medicine admit rules which had a universal application. In one respect they may be said to have surpassed Hippocrates in that they systematized the technique of medical procedure and sought to free clinical methods of thought from the subjectiveness of the individual observer.¹ Unlike Hippocrates, the Empirics made no attempt to reach general laws from isolated facts. Professor Clifford Allbutt not unjustly has termed the Empirics "The Philistines of Medicine," but the Philistine not infrequently possesses the saving merit of common sense, and we feel some sympathy with them when in opposition to the Dogmatist they asserted that "The husbandman and navigator are not trained by dispu-

¹ Neuburger. *Hist. of Medicine*, Vol. I., p. 189.

tations but by practice.”¹ The important question is not what causes disease but what dispels it. Diseases are not cured by talk but by drugs.

They were at great pains to show that the Dogmatists in not following faithfully the way of induction committed an infinite number of errors in their conclusions and that all the results furnished by simple reasoning are entirely useless in medicine. The Empiricists, however, were themselves much influenced by the logic of Aristotle with its definitions and syllogisms, so that, in spite of their very practical maxims, they often expended nearly as much mental energy in word-splitting definitions of the pulse, etc., as ever the Dogmatists had done in their speculations as to the hidden causes of disease.

Perhaps the most celebrated representative of this School was Menodotus of Nicomedia (fl. 1st century A.D.), who was less intransigent than most Empirics, for he did not insist upon an inherent opposition between observation and reasoning, between facts and explanations, between mind and experience.² He also seems to have recognised the value and purpose of a provisional hypothesis, but he did not hesitate to write with some violence against the Dogmatists, speaking of them sometimes as “mere followers of routine” (τριβωνικοὺς) at others as “furious lions” (δριμυλέοντας). In his eyes medicine had no other aim but utility and fame and could never aspire to the title

¹ Celsus. *De Re Medica* Lib. I.

² *Greek Medicine in Rome*. Clifford Allbutt, p. 165.

of Science. The other best known name belonging to this School is that of Heraclides of Tarentum, who lived in the early part of the second century B.C. We know but little about him except that in addition to his medical studies he devoted some time to the investigation of poisons and wrote much upon antidotes, of which opium and hemlock formed the base. He also wrote treatises on agriculture and had a reputation for learning and zeal in all branches of Medicine. By later writers he was spoken of as the most exact and faithful observer of the Empirical School. He was the only member of the School whom Cælius Aurelianus of the Methodist School thought worth refuting. His treatment of madness was quite rational; he first put the patient in a dark room, bled him, purged him every day and applied fomentations to the head. He wrote a book of prescriptions for soldiers simply entitled *στρατιώτης*, and also upon remedies for affections of the skin and falling out of the hair, and in fact gave rise to the art of cosmetics, which became widely spread in Alexandria.

As we have said before, the Empirics were indebted to the Sceptics for their intellectual background. As a School of Medicine their existence continued for a considerable time, even into the early part of the third century A.D., in which Sextus Empiricus flourished, a younger contemporary of Galen, and one who was himself partly an Empiric and partly a Sceptic, and it is from him that most of our knowledge of this School of Medicine is derived. We know nothing

of his life, and, unfortunately, none of his own treatises on medical subjects have come down to us; the writings which we do possess were directed against mathematicians, logicians, physical philosophers and ethical writers. He collected all that could be said against the Dogmatic School. Sextus maintained that Scepticism alone can make man happy, because it teaches that nothing is naturally (φύσει) good or bad. Like the Sceptics generally Sextus was disposed to consider phenomena true for practical purposes; he did not deny that some useful knowledge was traditional and might be communicated by speech or writing, for no man's sole experience is sufficient to give him all useful knowledge, but he rejected all scientific investigations of phenomena as idle enquiries. He did not realize that all scientific knowledge means the recognition of the interrelations of phenomena.

From what has been said it will be easily understood that the Empirical School was more satisfactory in practice than in theory. Attention was focussed upon the requirements of the sick man, without elaborating any hypotheses as to the cause of his sickness. By keeping close to facts, eschewing theories, and by the careful observation of symptoms, not only were useful contributions made to medical knowledge, but the imagination was held under some sort of discipline, prevented from running riot and indulging in the cruder forms of superstition. Collecting facts is always useful, but it is the beginning and not the

end of medicine. With a mental outlook so limited as was that of the Empirics the preventive side of medicine could never have been developed, nor would it have been possible to rise to the use of the Deductive method, however imperfect that had shown itself to be in the hands of the Ionian philosophers at a time when the materials for sound premises had not been adequately garnered. Thus Empiricism while favourable to Medicine on a lower plane is inimical to its advance to a higher one. We have seen how one of the most powerful influences in giving rise to this School was the Sceptical philosophy of Pyrrho, which attracted so many physicians. Scepticism in homœopathic doses may often serve as a useful anti-septic, so to speak, to a dogmatism which is growing fixed in routine, but when pushed to its logical extreme Scepticism tends to believe in its own sceptical disbeliefs. In a sense it is a sign of the world weariness and disillusionment which began to overtake Greek thought in the third century B.C. All extremes tend to produce their opposites, so that a period of Agnosticism is likely to be followed by an outburst of Gnosticism. The entire mistrust of the senses, and indeed of the reason, gradually urged the Spirit to seek for truth beyond the limits of natural knowledge to some possibly higher source transcending Time and Space, and this search, aided by impulses streaming in from the East, eventually found a resting place in the philosophy of Neo-Platonism. There is little doubt that the position of Scepticism is one in which

the human heart can never permanently acquiesce, and if as was said by Vauvenargues with profound insight, "Great thoughts come from the heart," the intellectual part of man's being will remain equally unsatisfied.

LECTURE IV

THE POST-HIPPOCRATIC SCHOOLS OF MEDICINE

THE School of the Methodists, seems in a sense to occupy an intermediate position between the opposing antagonisms of the two schools of the Dogmatists and Empirics we were considering in the last lecture. This name of Methodist is, doubtless, more familiar to English ears as the sobriquet jestingly given by a Christ Church undergraduate to the small group of friends who gathered round the brothers Wesley in Oxford in the middle of the eighteenth century on account of their regular manner of life and behaviour.¹ The name, as originally given, had, of course, reference to intellectual and not moral qualities. In any case it was not very appropriate, though the founders of the school did perhaps commit themselves to a more definite and precise theory of disease than either the Dogmatists or Empirics had done.

This School reduced medicine to very simple terms,

¹ "One person with less irreverence and more learning observed with reference to this methodical manner of life that a new Sect of Methodists was sprung up, alluding to the ancient school of physicians known by that name."—*Southey's Life of Wesley*.

which may remind us in some ways of Homœopathy, for in therapeutics they adopted the principle of “*contraria contrariis curantur*,” which is analogous though antagonistic to the system of Hahnemann. According to the Methodists the body consisted of atoms and pores, a doctrine derived from Epicurus. To the atoms they paid but little attention, concentrating themselves on the pores. Now these pores were said to be either in a state of too great contraction *στέγνωσις* or too great relaxation *ρύσις*. Later there came the idea of a mixed condition, *τὸ μεμιγμένον*, because obviously the two states of contraction and relaxation were often combined as in epilepsy and paralysis. Therapeutics consequently, as may well be imagined, became a very simple matter; in any given case of illness it was only necessary to decide whether the pores of the body were contracted or relaxed and then to apply either laxative or astringent remedies accordingly. For astringent remedies they made use of cold air and water, vinegar, alum, lead and chalk, while their laxative remedies consisted in venesection, cupping, leeches, and poultices, fomentations and warmth generally. Purgatives they rejected altogether, maintaining that they only substituted the opposite form of disease. For they considered that every relaxation of the belly or evacuation gave rise to a disease of “relaxation,” consequently they rejected purgatives because such remedies did not fit in with their system.

The foundation of the School of the Methodists synchronized with the migration of medicine from Alexandria to Rome as the centre of intellectual activity, and the entry of Greek medicine into Rome had been accomplished by the well-known and popular physician, Asclepiades of Bithynia, who had adopted the doctrines of atomism from Democritus and Epicurus. Of Asclepiades there has been given a most admirable account by Professor Clifford Allbutt in his *Greek Medicine in Rome*. Now it was a pupil of this Asclepiades, namely, Themison, of Laodicea (fl. 50 B.C.) who founded the School of Methodism. Though, like his master, he followed the doctrines of atomism, unlike Asclepiades, he concentrated his attention entirely on the pores, paying hardly any heed to the atoms. For the Methodist generally, acute disease was a state of contraction—status strictus—while a chronic disease was a state of relaxation—status laxus. The problem of disease for the Methodists was not: “What are the phenomena?” but how far could the malady be thrust into a status laxus or strictus or a mixture of the two. As regards therapeutics there were for the Methodists only two indications: (1) to relax the pores when there was a constriction, (2) to constrict them when there was a relaxation. What could be simpler? Among the therapeutic agents which were thought to have the desired effects were :—

Relaxing Agents

1. Venesection; but they practised this with caution, because "bleeding" tended to draw off the finer, the more vital atoms first, leaving the coarser ones behind.
2. Cupping; of this they made frequent use, sometimes they would cover nearly the whole body with cupping glasses, as they paid no attention to the part affected.
3. Softening plasters.
4. Warm drinks.
5. Diaphoretics.
6. Warm air.
7. Sleep.
8. Exercise carried to the point of fatigue.

On the other hand the Constricting Agents or Astringents were :—

1. Darkness.
2. Cool air.
3. Cold water and acid drinks.
4. Decoction of quinces.
5. Red wine, pure or diluted with water. The cold water had to be taken in small quantities for fear that if the patient took much it would soften the tissues and cause relaxation.
6. Vinegar.
7. Solution of alum.
8. Powdered chalk.
9. Lead plasters.

During the first three days of an illness they enjoined a strict abstinence; then they administered food only every other day. Remedies were not given till the third day. During the days of abstinence the patients only washed their mouths with water and drank a little; apart from this they were covered with plasters and wool steeped in warm oil if the disease was one in which the pores were contracted, and in cold oil if the disease was one in which the pores were relaxed. Such remedies appear to be very inconsiderable, but we must remember that the Methodists were under the impression that in relaxing or constricting the pores externally, they also relaxed and constricted them internally.

The Methodists did not believe in specific remedies any more than in specific diseases. They banished from their *materia medica* purgatives, diuretics, emmenagogues, anodynes, and hypnotics, only excluding emetics from their general proscription of remedies, and these they administered not with a view to evacuating the bile or the phlegm as the Dogmatists or Empirics would have done but in order to administer a shock to the animal economy which would open the pores and change the general state of the body. Their surgical indications were to remove from the body things which were foreign to it or opposed to its nature; these were either things which came from outside, such as a thorn or an arrow, and those developing internally such as a tumour, an abscess or an ulcer.

By means of these summary methods of diagnosis and cure the Methodists thought they could dispense with all further research. They made no inquiry into causes, whether remote or proximate, for, from the moment the causes had produced their effect, that is to say, from the moment the disease was formed, it was this, they said, which one had to cure. It was from the disease itself, they said, its nature, character, and cause, that one had to find the indications for treatment, and not from anterior circumstances which had no influence; and the nature of the disease consisted in having the pores too much constricted or too much relaxed. They attached but little importance to knowledge of the exact seat of the disease or of the part of the body affected, or to the consideration of the age of the patient, his habits, the general condition of his powers, the season of the year or the climate. The Methodists maintained that all such details were superfluous and brought no sensible modification of the treatment. For, according to this system, an affection of the constrictive type, such as an inflammatory tumour, always demanded the same kind of treatment, whatever might be the age and strength of the patient.¹

Themison, like his master Asclepiades, despised the ideas held by his predecessors upon crises and critical days. He wrote a great deal about various diseases, among others he described Leprosy, searched for its cause, and indicated a way of treating

¹ Histoire de la Médecine. Renouard, *Tome I.*, p. 363.

it which was based upon sound principles. He himself suffered from Hydrophobia and has given a description of it. Pneumonia he thought he could cure with oil and baths. In Pleurisy he permitted the use of wine mixed with sea water. In a large number of acute diseases violent exercise seemed to him to be beneficial. For gout, in particular, he recommended riding. Later followers of this school regarded some of Themison's therapeutic measures as unsound; thus, he used many Purgatives of which the Methodists did not approve. After he had done a venesection he gave cold water to the patient. This was held to be a most erroneous line of treatment, for it involved prescribing two remedies opposed to each other; namely, the Venesection which relaxed the pores and the cold water which constricted them. He seems to have been the first physician to make use of leeches. "Quot Themison ægros autumnno occiderit uno."¹

Among the disciples of Themison was Eudoxus, who made several observations on Hydrophobia, among others that even the dropping of a tear was enough to excite spasm of the Pharynx in those afflicted with this disease, which he thought to be but rarely curable. Another distinguished member of this school was Antonius Musa, of whom Dr. Crawford has recently given an excellent account.² He was the freedman of Augustus, and made a great reputation

¹ Juvenal. Sat. X., 221.

² Contributions to Medical and Biological Research, Vol. I., p. 24. (Osler dedication Vol. I.)

for himself by a lucky cure of the Emperor. The remedy which he employed was nothing more recondite than cold baths and drinking water, which soon afterwards became fashionable in Rome. For this success he was rewarded by being raised to the rank of a knight. He was also presented with a large fee and a gold ring, and a statue of brass was erected to him in the temple of Æsculapius. His book on the maintenance of health he dedicated to Mæcenas and it is interesting to reflect that he numbered among his patients not only Augustus and Mæcenas but also Vergil, Horace and Agrippa.

About this time was written the Latin medical classic by Cornelius Celsus, which is one of the most valuable treatises on Medicine which has come down to us from antiquity. It is uncertain whether Celsus himself was a member of the medical profession, or whether, as seems more likely, he wrote as an amateur; in any case we know that his medical treatise was only a small part of a large encyclopædic work, including agriculture and veterinary medicine. It has been thought that he was the Secretary of Tiberius and that he accompanied the Emperor in his expedition to the East. In some degree Celsus embraced the school of the Methodists which was then rising into fame, but his was not the type of mind to identify itself entirely with any school. He was certainly most unlike the Methodists in his appreciation of Anatomy; from his description in the "*De Re Medica*" it is clear that he must have dissected human

bodies. He does not indeed always distinguish between the arteries and the veins, and he has no very precise idea about the nerves, for he applies this name both to tendons and muscles.

The best known member of this School, and by some regarded as the real founder of it, though an absolute charlatan, was undoubtedly Thessalus of Tralles. He was a man of humble origin, being the son of a weaver, which occupation he followed in his youth. He had enjoyed none of the elements of a liberal education; from this resulted the pride of ignorance and scorn for the observations of his predecessors. He considered that Medicine could be learnt in six months. He reversed the famous Aphorism of Hippocrates that "Life is short and Art is long," by saying that "Art was short and Life was long"! On a monument in the Appian Way he styled himself "Conqueror of Physicians," *Ἱατρονίκης*, and he wrote to the Emperor Nero saying that his Medical predecessors had contributed nothing to science, the kind of statement which Nero might well have appreciated. So little did he know of Greek medical writings that he accused Hippocrates of causing the death of his patients by overfeeding them.

"I have," said Thessalus, "founded a new sect, which is the only true one, being obliged to do so because none of the physicians who have preceded me have found out anything useful for the preservation of health nor for banishing diseases, and Hip-

pocrates himself has uttered many harmful maxims on this subject."

By dint of great flattery Thessalus insinuated himself into the houses of the great. According to Galen, who was however the bitter enemy of the Methodist School, the manners of Thessalus were submissive and slavish, very different from those of the ancient physicians, the descendants of Æsculapius, who gave commands to their patients like a general to his soldiers or a prince to his subjects. Thessalus, on the contrary, obeyed his patients like a slave his master; if his patients wished to bathe, he let them do so, if they wanted to take ice or snow he gave it them. Naturally Thessalus attracted a large number of pupils, mostly from the artisan class, who were anxious to become doctors in six months; he himself wrote five large volumes which would require almost that length of time to read through. It was Thessalus who introduced "the abstinence of three days," *διάτριτος*, with which, as we have seen, this school began the treatment of all diseases. It was from this time that the Roman physicians adopted the practice of only visiting their patients when accompanied by their students.

Of a far higher calibre was Soranus of Ephesus, who may be regarded as one of the chief ornaments of the Methodist School. He was the son of Menander and, having been brought up at Alexandria, came to Rome in the time of Trajan and Hadrian (fl. A.D. 93-138). He was the first of the

Methodist School to offer a plausible reason for the rejection of the use of purgatives, namely, that they got rid indiscriminately of humours which were wholesome and those which were vicious. He always used venesection in a case of Pleurisy, because it clearly arose from a status strictus. He wrote a book on Gynæcology which showed that he had a wide knowledge of anatomy, a subject as a rule despised by the Methodist School, and his ideas on anatomy seem to have been based on human and not merely on animal dissection, as had been the case with most of his predecessors. The great theologian Tertullian spoke of him as "*methodicæ medicinæ instructissimus*," and his reputation lasted well on into the Middle Ages.

We should know but little of the Methodist School were it not for the writings of Cælius Aurelianus, to whom we are indebted for the greater part of our knowledge about it. Galen was such a bitter antagonist of the Methodists that his statements about them cannot always be relied upon.

Cælius Aurelianus lived in the fifth century A.D.; he was a native of Sicca in Numidia, but practised and taught in Rome. Like most other members of the Methodist School his education had been very imperfect, and this perhaps explains the barbarism of his style and his complete ignorance of the Greek language. On the other hand, no ancient author has more clearly set forth the diagnosis of each disease, and it was a fortunate circumstance that in the Middle

Ages the monks selected him before all others for their guidance in the treatment of disease.

As examples of Acute Diseases which depend on Constriction, Cælius Aurelianus gives us (1) Madness, (2) Lethargy, which involved a stronger constriction than madness, (3) Catalepsy, (4) Pleurisy and Pneumonia, (5) Tumours.

Chronic diseases depending on Constriction were (1) Headache, (2) Giddiness, (3) Asthma, (4) Epilepsy, (5) Jaundice, (6) Obesity, (7) Suppression of the Catamenia, (8) Melancholy, (9) Paralysis, (10) Phthisis, (11) Colic.

As an example of Acute Disease caused by Relaxation he gives Cholera, and of Chronic Diseases Hæmoptysis and Diarrhœa, excess of the Catamenia and Wasting.

Health, according to this School, consisted in all the parts of the body being in a natural condition and disease was a lesion of the functions. Since, however, general indications seldom came before the senses, how is it possible to tell in a case of madness for instance whether the pores are contracted or relaxed? One must know the external phenomena which are in relation with the inner conditions, according to which one has to form an opinion of the latter. Some of the Methodist physicians believed they could find the signs in the evacuations, the suppression of which depends on a contracted state, while an abundance was evidence of a relaxed condition; others were content to study the general condition of the body

whether it was swollen or diminished in size and to regard it as relaxed or contracted accordingly.

Since these two general states of the body were sufficient to guide the physician in the knowledge and treatment of disease all etiology became superfluous, for there is no object in knowing the cause of the constriction, for instance, so long as we are able to cure it. Thus in a case of poisoning they only considered the question of curing the affection caused by the poisonous substance without thinking of destroying the poison.

With regard to treatment at the outset of a disease they interdicted all kinds of food to the patient, or at least he was only allowed light things and such as were easy of digestion. At the lapse of each period of three days they increased progressively the amount of nourishment. The Methodist School certainly possessed the merit of endeavouring to cure disease by the simplest measures, such as air and food. In order to make use of air for the purpose of relaxing the pores they put their patients into rooms which were very light, moderately warm and large. When, on the other hand, they wanted to have the constricting effect of air they placed their patients in rooms which were dimly lighted and very cool : to attain this object they were not content with selecting rooms which faced north and where the sun seldom shines, but they even chose out grottos and subterranean places, also they watered their patients with cold water, made use of bellows and fans, and, in a word,

omitted nothing which could increase the freshness of the air. One should, they said, be more careful of the air that one breathes than of the food that one eats, because one only takes food at intervals, while one breathes continually, and the air entering into the body without cessation and penetrating into the smallest spaces constricts or relaxes more powerfully than does food.

They also paid great attention to posture in bed, and considered the sort of covering patients ought to have, whether they should sleep on a mattress or on a bed of feathers, whether the bed should be large or small, and its relation to the windows. In a word, they were most particular about all such things as other physicians passed over more lightly.

Acute diseases were usually associated with the Status Strictus, and drastic remedies such as strong purgatives, narcotics or cold baths, were seldom applied, and venesection only in cases of severe dyspnœa, hæmoptysis and inflammation of the lungs; the principal methods employed were warm bandages, rubbing with warm oil, various kinds of passive movements and leeches. Chronic diseases, on the other hand, were usually associated with the "Status laxus," and for these the best remedies were considered to be lying out in cold air, washing with vinegar, astringent food, and specially active bodily exercises of every kind, and reading aloud.

The School of the Methodists was astonishingly successful, at least in gaining students, partly, no

doubt, because their system could be acquired in a very short time; in fact it demanded the minimum amount of knowledge, and so it satisfied the natural appetite of the human mind for generalizations, which the Empirical School had done nothing to supply. Finally, it occupied an intermediate position between Dogmatism and Empiricism, appearing to unite the advantages of both schools without the inconvenience of either. Thus the Methodists would say to the Dogmatists that, like them, they accepted rational truths but they deduced them from sensible phenomena, not from circumstances which are incapable of coming before the senses. On the other hand, like the Empirics, they took observation for their guide, but they did not embarrass their art with a confused multitude of details which were difficult to remember and still more difficult to put in practice. From experience, they said, they deduced a small number of rules based upon obvious signs.¹ Members of the School of the Methodists as a rule had not read much, in fact they somewhat despised learning.

We will now turn for a moment to that philosophy which had most influence upon the School of the Methodists, and which in fact formed their intellectual background. We mean, of course, the philosophy of Epicurus. Now this philosophy was quite unlike those which came before us in the lectures last year, for it made no serious attempt at profound speculation as to the ultimate constitution of the

¹ Kurt Sprengel. *Hist. de la Méd.*, Vol. I., p. 372.

Universe nor was it interested in the laws of Thought.

Epicurus was born in the island of Samos about 342 B.C., some two hundred years later than Pythagoras. At the age of 18 he went to Athens and began life there, as a teacher of grammar until his attention was drawn to philosophy, owing, it is said, to the inability of his teachers to explain what Hesiod meant by Chaos. At the age of thirty-five he purchased for eighty minæ his famous garden in Athens, and there he taught for the remainder of his life till his death at the age of seventy-two. During the latter part of his life he was afflicted by severe sufferings for several years, being unable to walk, but he bore his pains with philosophical patience, cheerfulness and courage. Epicurus was one of the most prolific of Greek writers, and is said to have written some three hundred volumes (κύλινδροι). He prided himself on being Self-taught (αὐτοδίδακτος) and boasted that he was entirely independent of all his predecessors, yet it is quite obvious that he was largely indebted to Aristippus and the Cyrenaic School of Pleasure on the one hand and the atomic theories of Democritus on the other. Unlike the philosophers of whom we spoke in our previous lectures he took no part in political affairs, his maxim being "to live secluded" (λάθε βιώσας). The main purpose of the Philosophy of Epicurus was the Moral Life; thus Physics were regarded as merely ancillary to Ethics, which were the beginning and end of the Epicurean teaching.

Thus he regarded philosophy as part of the daily business of speech and thought with a view to securing a happy life. According to Epicurus it was not necessary to have read deeply or thought profoundly; literature and education were often more of a hindrance than otherwise. "My good sirs," he says, "leave all literature and culture alone" (παιδείαν πᾶσαν, μακάριοι, φεύγετε).

It need hardly be said that the popular conception of Epicureanism as encouraging an unrestrained luxury is entirely removed from the facts, and is due to our knowledge of his teaching having come down to us through the writings of his enemies, as though our knowledge of the Protestant Reformers had been gathered from the diatribes of the Roman Catholic Church, or the tenets of the Romanists from the invectives of the Reformers. A single instance will be sufficient to show us the kind of life advocated by Epicurus. In writing to a friend he says: "For myself I can be pleased with bread and water, yet send me a little cheese in order that when I want to be extravagant I may be." He is also responsible for the saying "It is more blessed to do good than to have good done to one" (τὸ δ' εὖ ποιεῖν ἡδιόν ἐστι τοῦ πάσχειν). To Epicurus the world presented itself as a mechanism, and within the limits of this mechanism it was the business of man to arrange his life as well as he could, but it was not necessary for him to know more of this mechanism than that on which his own weal or woe depended. So long as

one realized that everything had natural causes, it mattered little what the causes were, and so indifferent was Epicurus to Physics that his school persistently maintained that the sun was no larger or but little larger than it seems! He adopted the Atomic theory of Democritus because this harmonized best with his ethical individualism. In order to explain how the atoms first came in contact with each other Epicurus ascribed to them a certain power of individual or arbitrary self-determination, in virtue of which they deviated somewhat from the direct line of fall; the first collision of atoms with each other, he thought, was due to an accidental deviation of single atoms from the vertical line of descent. He would seem to have attributed to the individual atoms that species of freedom or rather independence of law with which he endowed the human will.

Although the doctrines of Epicurus never took so great a hold upon the ancient world as did Stoicism, yet his immediate disciples adopted and followed his teaching with scrupulous conscientiousness, and they became devoted to their master in a way which has been hardly equalled in ancient or modern times, their esteem, love and veneration almost bordering on worship. They are said to have committed his works to memory; they had his portrait engraved upon rings and drinking vessels, and they celebrated his birthday every year. Athens honoured him with bronze statues, and the number of his pupils and friends is

said to have exceeded the population of whole cities.¹

It is well to remember that at the time when Epicurus was living at Athens, the Grecian world had seen the downfall of Thebes, the exile of Demosthenes, and the shipwreck of the whole Hellenic State system.² Political freedom having to a large extent disappeared, the philosophers endeavoured to establish an internal freedom based upon ethical principles and to maintain it in spite of outward oppression. It was this inward freedom which the Epicureans no less than the Stoics set themselves to supply.

It is not to be imagined that the average physician of the methodical school busied himself much about the Epicurean or indeed any other philosophy, but he was none the less surrounded by it, as the ordinary man is enveloped in the atmosphere, about the weight and composition of which he is not concerned to inquire. What we have specially to note is that the Epicurean philosophy by its close concentration on the moral life of man, together with its inadequate and most superficial way of dealing with Physics, helped to promote the decidedly crude and superficial way of regarding disease which we have seen to be characteristic of the School of the Methodists.

We now come to the last Medical School which we shall consider in these lectures, namely that of the Pneumatists. Though in some ways the least influ-

¹ Smith's Dict., Greek and Roman Biography.

² Hellenica. W. L. Courtney. (Art. Epicurus.)

ential and certainly the most short-lived of these Post-Hippocratic Schools of Medicine, their very name has a certain fascination about it which draws one's thoughts to the Schools of Philosophy. The Pneumatists may be regarded as an offshoot of the Dogmatists, who began to take on this name when the sect of the Methodists was at its zenith. Physicians who did not want to follow the Methodist School embraced that of Pneumatism so as to have solidly established principles which they might oppose to the Methodists. For, unlike the Methodists, the Pneumatists believed much in dialectic and regarded it as indispensable to the perfection of science. The name of Pneuma was given by them to what they regarded as an active principle, which was the determining factor of health and disease. Platonic theories had already laid the foundation of the doctrine of this aerial substance, but Aristotle gave the first clear idea of it when he described the way in which the Pneuma is introduced into the body and the circulatory system.

The doctrine was still further developed by the Stoics, and they exercised a great influence over the Pneumatists and so upon the further evolution of medicine. They were of opinion that the aerial substance passed from the Lungs into the Heart and arteries and was then disseminated throughout the body. Now, though the Pneumatist School attributed the larger part of diseases to the activity of the Pneuma, they paid attention at the same time to the

mingling of the elements. Heat and moisture, they said, when united together are more suitable for the preservation of health, heat and dryness give rise to acute diseases, cold and moisture produce phlegmatic affections, while cold and dryness are the cause of melancholy. On the approach of death everything becomes cold and dries up.

The Pneumatists maintained their theories with the greatest enthusiasm and pertinacity; Galen says of them that they would rather have betrayed their country than abandoned their doctrines.

The founder of this School was Athenæus of Attalia in Cilicia, who practised in Rome about the middle of the first century, in the reign of Claudius, and, according to Galen, his writings, which have not come down to us, embraced the whole range of the healing art. In his teaching Athenæus maintained that the Pneuma was the World Soul, the living Self-conscious God, from whom the souls of men, animals, and plants proceed, and who was also the creator and framer of all matter. Its unhindered movement was in the last resort the cause of all physiological and pathological happenings. As a Stoic, Athenæus adopted all the doctrines of the Peripatetic School, but he developed the theory of the elements more or less after the manner of the Methodists. In the four well known elements he saw positive qualities (ποιότητες) of the animal body, but frequently he seems to have regarded them as true substances, and he gave to their entirety the name of

the "nature of man." Athenæus identified the Pneuma with innate heat and, like the Stoics, accepted the heart as the seat of it; the heart, therefore, was the governor (ἡγεμονικόν) of the life of the body, the seat of passion and even of cognition. He considered that blood ran in the arteries as well as in the veins, but that in the arteries there was more Pneuma, in the veins more blood. He did not even hesitate sometimes to oppose Stoic doctrines, for we find him maintaining that "qualities are not corporeal" (ὅτι αἱ ποιότητες ἀσώματα) in direct contravention of Stoic teaching.

Like the School of Hippocrates he paid great attention to diet, determining the utility or bad qualities of various cereals; he also established sound principles with regard to the atmosphere and the site of dwelling houses, and he indicated the way in which water should be filtered.

A disciple of Athenæus was Agathinus of Sparta; but he withdrew considerably from the rigid principles of his master and made some approach to the Empirics and Methodists; his followers were often called Eclectics. Among other things he wrote much about the pulse, attributing the full pulse to the large amount of Pneuma which distends the artery, and a sign that the vital force was developing its action adequately. He defined the pulse with no less subtlety than his master Athenæus and distinguished it from a beating (παλμός) which he admitted existed in the hidden arteries. He was a strong believer in

cold baths for the preservation of health, and attributed to the common use of warm baths all the evils caused by weakness, excitement and irritability.

It was from this School that there emanated some curious teaching about the pulse at different ages: thus, in the new-born the two short syllables of a verse—a short systole and a short diastole; in older persons the pulse is like a Trochee, with long systole and short diastole, while in still older people the pulse with a long systole and long diastole becomes like a Spondee.¹

Far better known than Agathinus was his disciple Archigenes of Apamea, who practised medicine at Rome in the time of Trajan, and enjoyed a great reputation among his contemporaries which endured for several generations. He was sufficiently celebrated to be mentioned several times by Juvenal in his satires. Like the Stoics, Archigenes placed the seat of the soul in the heart; which not unnaturally made the explanation of the sensory nervous system a matter of considerable difficulty for him.

His doctrine of the pulse was famous in antiquity, and he described eight different kinds of pulse according to their size, force, velocity, frequency, fulness, regularity, equality, and rhythm. Each of these species was divided into several varieties. Archigenes thought it advantageous to change the medical nomenclature then in use: he was very fond of words and

¹ Hæser: *Gesch. der Medizin*. Vol. I., p. 338.

invented many new names which were almost unintelligible even for the learned Galen. He reasoned about pain with the same kind of subtlety with which he had reasoned about the pulse, in particular he tried to determine the seat of the disease according to different modifications of the pain to which it gave rise, and he made every effort to describe the varieties by particular names; thus the pain caused by an affection of the Spleen was described as "heavy and compressing"; that caused by the Bladder as "pungent" and like that produced by a tight ligature.

As regards *Materia Medica* Archigenes made use of a large number of drugs, mostly of a mild variety, preferring mild laxatives to drastic purgatives. At the height of the disease he had recourse to warm fomentations, especially to sponges soaked in warm water in order to lubricate the pores and favour coction. He gives an excellent account of Dysentery, which he attributed to Ulceration in the large intestine, and he prescribed for it preparations of opium and astringents. He further described the signs for recognising an abscess of the Liver and explained its formation and termination. With regard to Insanity, Archigenes, like most Greek physicians, showed remarkable enlightenment. Seeing the priests of Cybele scampering and flagellating, and cutting themselves after their manner, he said, "they are insane; do not leave them to those bloody gods of the East, send them to me." His treatment of the maniac was to feed him up and soothe him with

music.¹ On the other hand, so little consistent is the mind of man, he sometimes in his treatment had recourse to amulets and other methods of superstition. As so often happens some of his disciples indulged in absurdities and, according to Galen, maintained that the air did not enter the Lungs in Inspiration or leave them on Expiration. In fact their union of medicine with the subtleties of dialectic caused their writings to be filled with enigmas as difficult to explain as the riddles of the Sphinx.

Archigenes is said to have cured his master Agathinos of Insomnia by pouring a large quantity of warm oil over his head. In cases of Pleurisy he was in the habit of bleeding on the side opposite to the seat of the pain and did not arrest the flow of blood until the patient fainted. He appears to have been the first physician to demonstrate that hemiplegia affects the side of the body which is opposite to the cerebral lesion, and he also described the aura of Epilepsy. A somewhat notable remark of his was "What we need is to be fertile in expedients, not to be always paying attention to the writings of other people."

Of the same School and about contemporary with Archigenes lived the well-known physician Aretæus of Cappadocia, to whom we are indebted for some of the best medical writings which have come down to us from antiquity. Aretæus was brought up in the principles of the Pneumatic School, but later made

¹ Greek Medicine in Rome. Clifford Allbutt, p. 283.

some advance to Eclecticism. His date is rather uncertain, but in all probability he flourished in the second half of the second century of our era and was contemporary with Galen, but, strangely enough, he never makes mention of Galen, nor does Galen allude to him; it seems in those days to have been the fashion for literary contemporaries to be silent about one another. The difficulty in fixing his date is further increased by his making no mention of any previous authors except Homer and Hippocrates. He wrote in the Ionic dialect, though this had long ceased to be spoken at the time when he lived, but Aretæus probably simply followed the example of Hippocrates and what we might call the scientific tradition of writing is Ionic. This dialect was also sometimes made use of by Galen and the historian Arrian. His accounts of the configuration of the land in Egypt and of Syrian sore throat let us suppose that he may have spent some time in these countries.

Unlike the Empirics, Methodists, and most other Pneumatists, he paid great attention to anatomy, and his knowledge in this department was far superior to that of his predecessors; thus he thought the Lung was insensitive, made of some substance like wool, provided with a very small number of nerves, and entirely devoid of muscles. On the other hand, the Pleura was endowed with a high degree of sensibility and was the seat of the pain in inflammation of the chest, when the patient experiences keen suffering. It was, he said, in consequence of the insensibility of

the Lung that Phthisical patients retained so much hopefulness as they approached the end of their existence. Inflammation of the Intestines he thought was due to the Pneuma being cold and without activity, which being unable to pass upwards or downwards, remains for the most part rolled up in the small convolutions of the upper intestines and hence the disease has got the appellation of Ileus (or volvulus). His description of the symptoms of diseases is complete and masterly and true to nature. The origin of the Pneuma Aretaeus explained in the same way as Aristotle and the Stoics had done: "This aerial substance," he said, "passes from the lungs to the heart and the arteries disperse it afterwards throughout the body." The heart, like the Stoics and other Pneumatists, he regarded as the seat of the vital force and of the soul. It was the qualities of the Pneuma which determine the nature of most diseases. Thus a Pneuma which is heavy and moist gives rise to obstructions in the spleen. Giddiness results from the weakness of the aerial substance, which being unable to keep fixed turns continually in a circle, and epilepsy occurs from the same cause, namely, a Pneuma which is shut in and sets everything in motion. In Pleurisy the Pneuma was said to be dry and thin, giving rise to a dulling of the senses. He credited the heart with far greater pathological significance than any other author, and syncope, of which he gives an excellent description, he considered to be a cardiac affection. In proof of

this he adduces the fact that in those who fall to the ground in a faint there is a small and weak pulse, also a cardiac sound (πάταγος) may be heard.

Respiration depends on the arbitrary movement of the thorax and diaphragm and upon the contraction and expansion of the lungs, but the special stimulus to respiration proceeds from the heart, which by means of its heat causes the lungs to take up cool air from outside. Above all the heart has the capacity for drawing much to itself, e.g., poisons from the stomach, deadly substances from abscesses of the lungs and air passages.¹

With regard to Therapeutics Aretæus was guided by experience and avoided subtle reasoning; he used few remedies and mostly those with a mild action, when energetic measures were indicated he employed opium, emetics, purgatives, also venesection, which he performed on the side opposite to the affection, because he found from experience that it was best to withdraw blood from the parts most distant from the seat of the disease. His somewhat frequent use of emetics was determined in most diseases by a desire to get rid of swellings or to administer a salutary shake-up to the whole nervous system.

Aretæus, in his dignity, integrity and love of his art, was a true disciple of Hippocrates. He differed from Hippocrates in thinking that the physician should attend even cases of incurable disease, though he might be able to do nothing but express sympathy.

¹ Hæser. *Gesch. der Medizin.* Vol. I., p. 243.

Next to Hippocrates he was the best observer in Antiquity, and seems himself to have seen nearly all the diseases of which he gives so clear and graphic a description. Like Hippocrates, too, he laid stress on individual differences of constitution and of climate and on the changes of the seasons. Like the rest of the Pneumatist School he often derived diseases and their symptoms from the temperature of the elements. Among others, he found in cold and dryness the causes of old age and of death, indeed he made various chronic affections issue from the cold and damp. The Liver he thought to be the organ assigned by Nature for the preparation of the blood, and, like the rest of the ancients, he made this viscus the seat of Desire. His description of the kidneys suggests that he already suspected the existence of the ducts of Bellini.

As to the nervous system his ideas are those of his epoch. He places the origin of the nerves in the Brain and looks upon them as the organs of sensation, but he also speaks of the nerves which unite the muscles together and attributes a nervous nature to the bladder and to the ligaments of the uterus, which shows that he confounded tendons and aponeuroses with nerves. Tetanus, Madness and Gout he classifies among nervous affections, because in these diseases the tendons and aponeuroses are affected and spasmodically strained. In the account of Tetanus occurs a passage which suggests that Cerebro-spinal Meningitis was not unknown to him. The fact that

paralyses of central origin are crossed, while those of spinal origin are not, was clearly distinguished.

We have seen how the Dogmatists were influenced by Plato, the Empirical School by the Sceptics, the Methodists by the Epicureans, and now, finally, it was the most fashionable philosophy of the Roman world—namely, Stoicism—which exercised most influence over the School of the Pneumatists. The whole idea of the *Pneuma*, at least the elaboration of it, was of course Stoic in origin. No doubt the Hippocratic idea of Innate Heat (θέρμη ἔμψυχος) was something of the same nature, and the same idea in later times may be found in the *Archæus* of Van Helmont, though that was perhaps a more mystical conception, and even indeed in the *élan vital* of Bergson. But the Stoics, like the Epicureans, were not primarily interested in Physics or in theories about the *Cosmos*, nor did they have any high opinion of Medicine, for their essential aim was to find some philosophic basis for the guidance of everyday life—how, in fact, life was to be lived rationally and nobly in the world; unlike the monastic ideal of the Middle Ages, which was rather how life was to be lived out of the world. Zeno, the founder of the Stoic School of Philosophy, some three hundred years before the epoch we are now considering had endeavoured to discover for men a way of escape from Fear and Desire by adjusting their Wills to everything which might befall them. “I am happy,” he said, “when I do not want things to be any other than they are.”

According to Zeno the world was governed by the same divine Reason which dwells in the breast of each individual, and the Universe, animated by this Reason, was striving to realize values which the human Reason would appreciate as good if it could but know the whole. Human Reason coincided with the universal Reason which governs Nature, and this indeed, according to Zeno, was the source of the Moral Law. Not unlike Spinoza, Zeno, the founder of Stoicism, had been led to the study of philosophy in the first instance by the necessity of finding a firm support for his moral life. But true morality is impossible without true knowledge; "virtuous" and "wise" are treated as synonymous terms, and though philosophy is to coincide with the exercise of virtue it is at the same time defined as "the knowledge of the divine and human."¹

With a view then to establishing a physical basis for his Ethics Zeno went back to Heracleitus and believed that all individual things in the world are only oppositions of one and the same thing, and that there is but one law which governs the course of nature and ought to govern the actions of man. The ultimately Real was regarded by the Stoics as corporeal and spoken of as warm vapour (πνεῦμα) or fire, for it is warmth which begets, enlivens and moves all things. This Pneuma or artistic fire (πῦρ τεχνικόν) penetrates all things, enlivening them and containing

¹ Zeller. *Outlines of Greek Philosophy*, p. 232. (Transl. by Alleyne and Abbott.)

their germs within itself. In a sense it was synonymous with the deity and the human soul was part of the deity. The Soul, too, like all that is Real, has a corporeal nature, it comes into being with the body, but its material is the purest and noblest, a part of the divine fire. This fire of the Soul is nourished by the blood, and the governing part of the Soul (τὸ ἡγεμονικόν) has its seat in the heart, the centre of the course of the blood. From this centre spread out seven offshoots, namely, the five senses, the power of speech and of procreation to their corresponding organs. The power of the Soul was due to the Pneuma, which was carried to the brain with the blood after having been prepared by the Vital Spirits.

The essential aim of the Stoic physics was to show that the power operating in the Universe was rational; Zeno believed in a rational process controlling the world. When Zeno said "God is body" he showed his repugnance to any teaching which would dissolve God into an abstract idea; it was the crude expression of an intense conviction that God was real, was indeed concrete. For the Stoics the Universe was a living being (ζῷον), and we should therefore regard this doctrine as pantheistic rather than materialistic.¹ The Soul, in a sense, must be immortal because nothing ever really perishes. Forms change but the substance persists. The destiny of the Soul, as of everything else, is to be reabsorbed into the primal essence, which the Stoics, like Heracleitus, identified with or

¹ Bevan. *Stoics and Sceptics*, p. 42.

symbolised by fire.¹ Chrysippus, a successor of Zeno, was of opinion that without the study of Physics it was not possible to distinguish between good and evil, yet, as a matter of fact, the Stoics did not really go very deeply into the question of Physics and investigation of nature.

As we have seen in the case of the Epicureans, so too with the Stoics, the free and purely scientific contemplation of the world which characterized the old Ionian philosophers had disappeared coincidently with the loss of political freedom in the rise of the Macedonian hegemony, and the chief value of philosophy was sought more and more in the refuge with which it provided men against the miseries of life. The concentration, then, of Stoicism upon conduct and the moral life is perhaps its chief title to fame. It cannot therefore be said that the Pneumatist School of Medicine received any great stimulus to the investigation of nature from the Stoic philosophers, but what it did receive was a belief in a rational principle pervading nature that, indeed, nature is governed by rational laws, to which it is the business of man to accommodate himself. Such a belief was undoubtedly a source of stability to the intellectual life of those physicians among the Pneumatists who unconsciously followed the Stoic teaching and raised them to a loftier mental standpoint than that occupied by the Empirics and Methodists. In the sphere of Medicine the Pneumatists had their closest intellectual affinities

¹ W. R. Inge. *Philosophy of Plotinus*. Vol. II., p. 11.

with the Dogmatic School, but, unlike the Dogmatists, they were not to the same extent led astray into hair-splitting logomachics and dialectical quibbles, which by a natural reaction had given rise to the crude simplicities yet more immediately useful methods of the Empirics and the practical man. In the long run the belief in reason can hardly fail to have a favourable influence on the progress of Medicine, and therefore the Stoic philosophy offered this indirect help to Medicine. But Stoicism in ordinary parlance calls up the vision of rather hard, unamiable people, indifferent to all outward things, careless alike of the major and minor æsthetics of life, and clad in an impenetrable carapace of spiritual pride. This picture of the Stoics has been drawn by all the world's Satirists from Horace onwards. Yet it is not a true picture till we come to the later phases of Stoicism, when that philosophy was passing into the unpleasant eccentricities of the monkish ascetic. The earlier Stoics with whom we are more concerned, doubtless, busied themselves but little with Physics and the structure of the external world, still less were they interested in Metaphysics such as speculation about the Absolute, the Unconditional, the pure Being of Plato and Aristotle; all their teaching was directed to Ethics and the right conduct of man's life, but they were not averse from a life of action, they maintained an ideal of civic virtue, and had not learnt to be indifferent to the welfare of the State even though a somewhat abstract cosmopolitanism was teaching

them to transcend the limits of nationality. Unlike the Neo-Platonist Plotinus who induced one of his disciples Rogatianus the Senator to give up the actual life of a high official and betake himself to philosophic contemplation, the earlier Stoics believed in leading an active life in the visible world. The Medical School of Pneumatists seems to me to have been exceptionally free from the taint of charlatanism and to have maintained an ethical standard distinctly above the average of the profession in their day. Is it unduly fanciful to imagine that the noble moral grandeur which characterized the great Stoics such as Seneca, Marcus Aurelius, and Epictetus, may have instilled itself into the physicians of the Pneumatist School?

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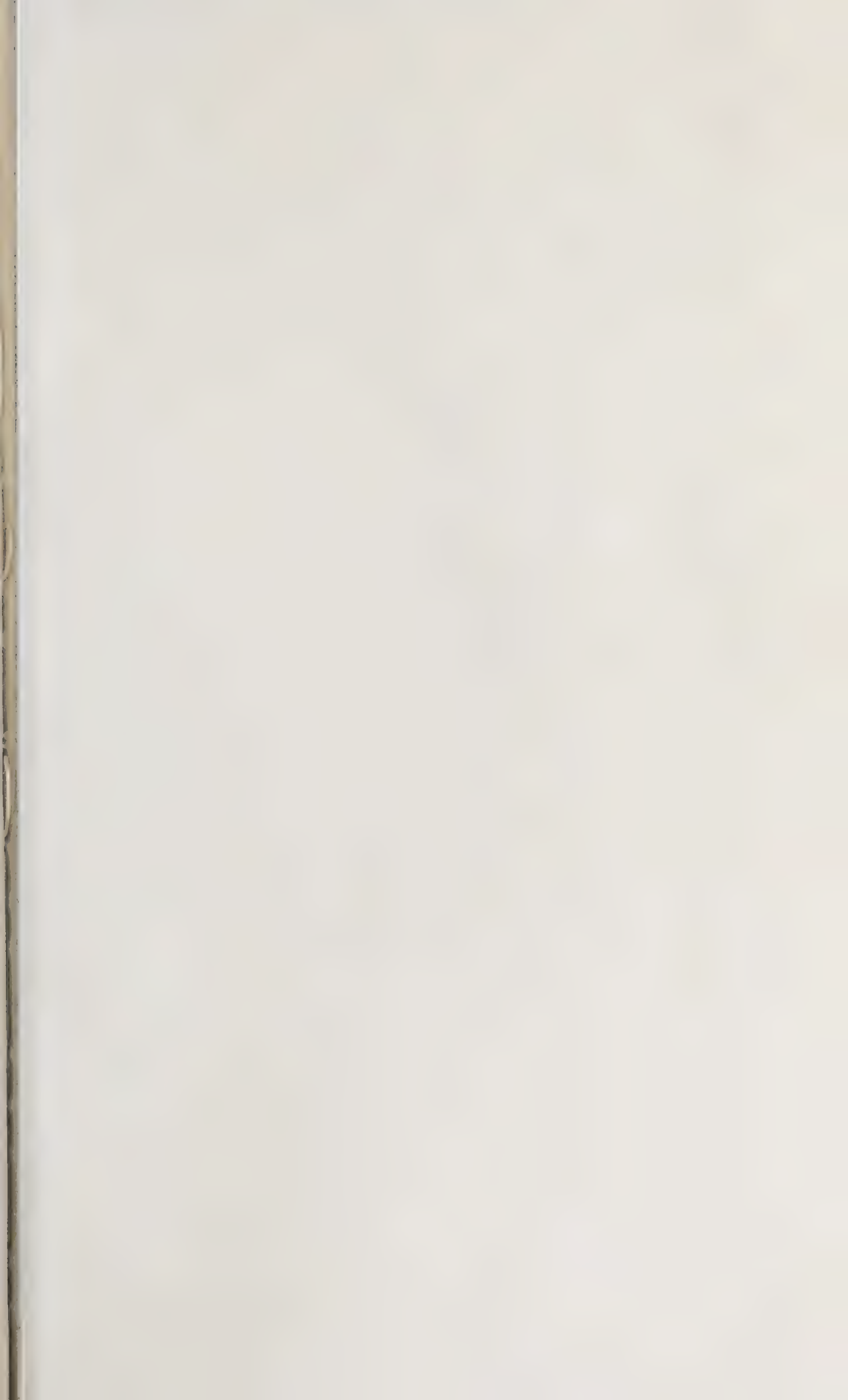
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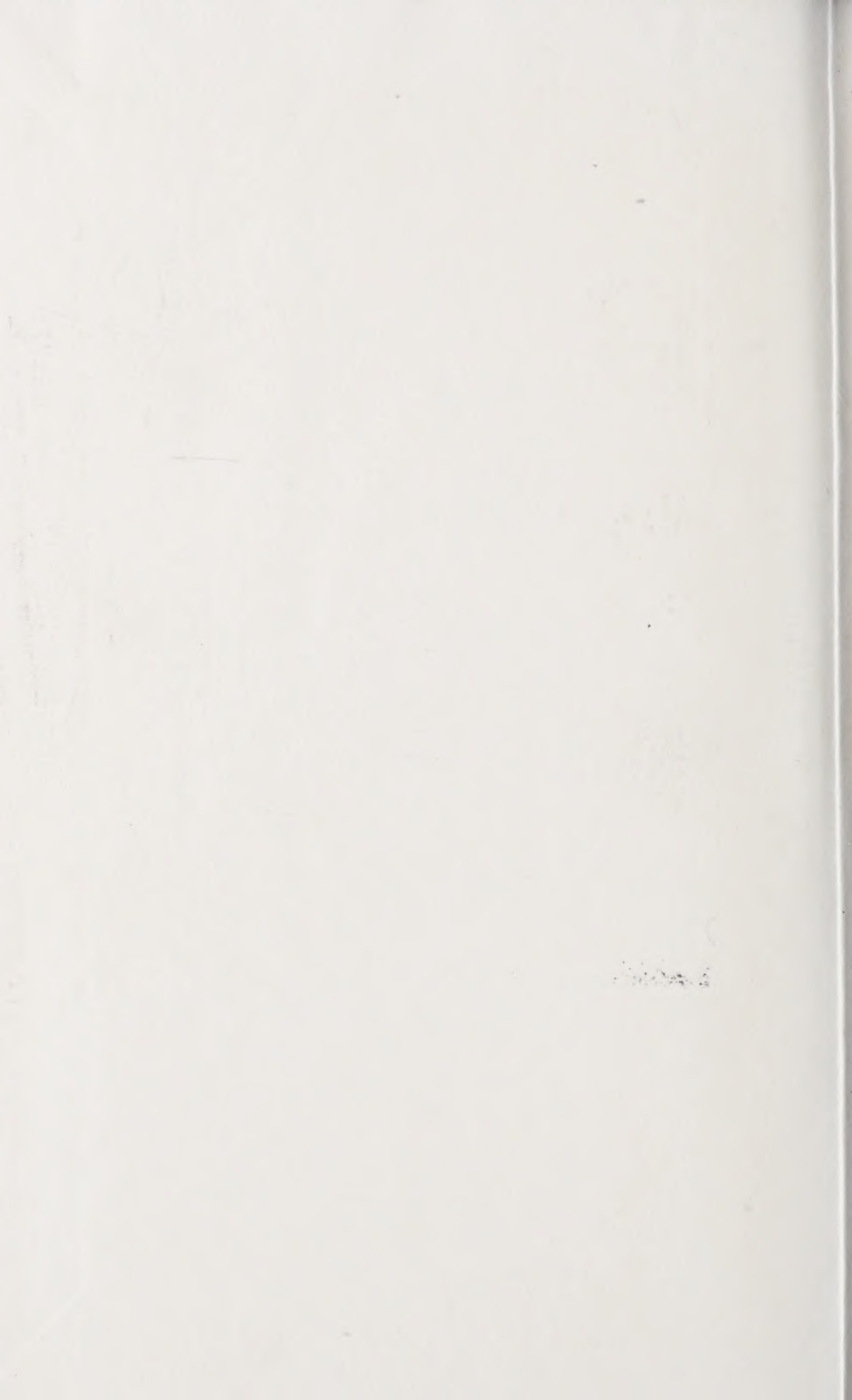
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